

# Railway Age

WITH WHICH IS INCORPORATED THE RAILWAY REVIEW

FIRST HALF OF 1927—No. 20

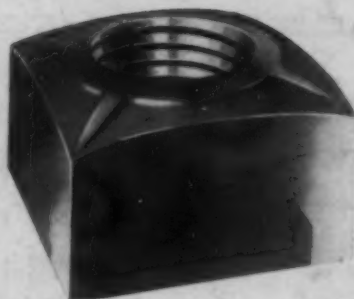
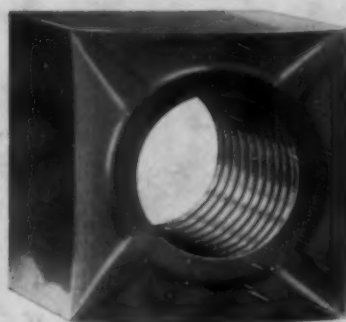
NEW YORK—APRIL 16, 1927—CHICAGO

SEVENTY-SECOND YEAR

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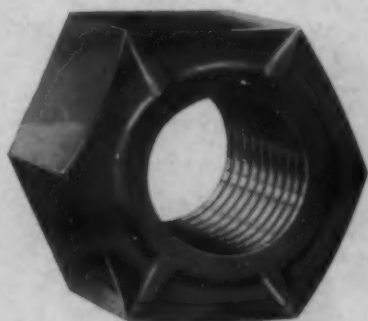
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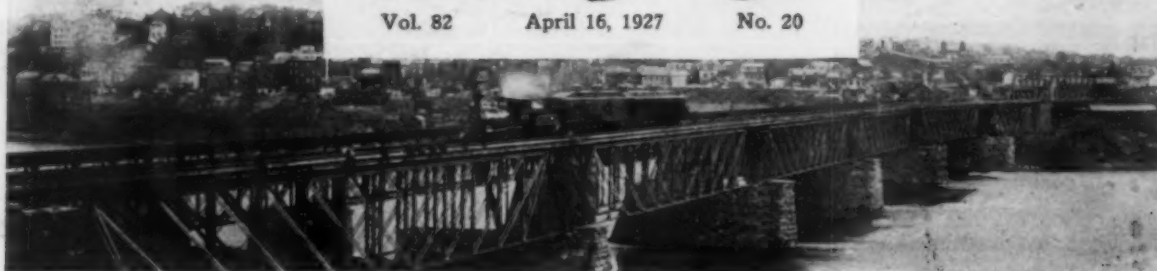


# Railway Age

Vol. 82

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Lehigh Valley Bridge Over Delaware River at Easton, Pa., in 1875

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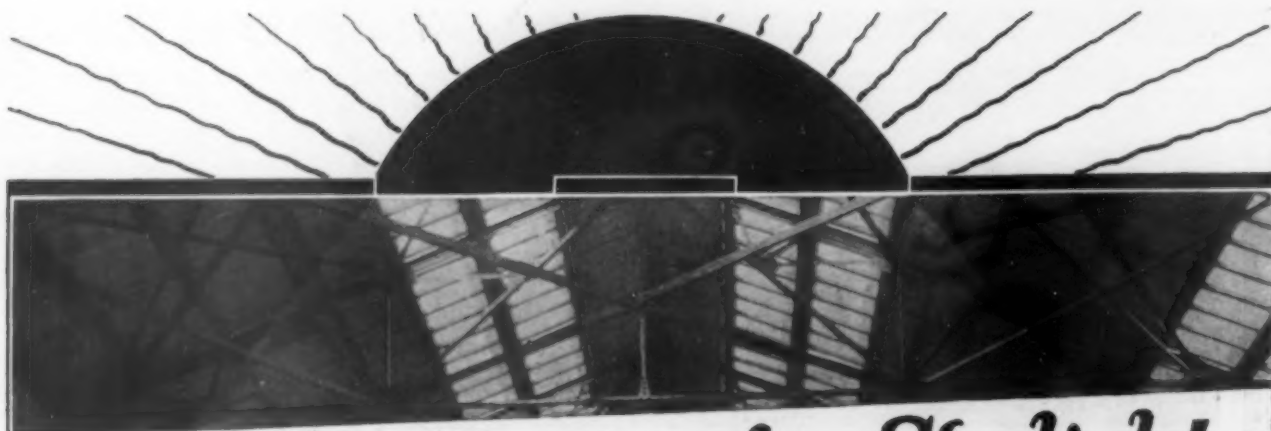
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# CEMENTILE



# Railway Age

Vol. 82, No. 20

April 16, 1927

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## Heavier Car Loading

**I**N the last year or two reports from the various Regional Advisory Boards have urged the heavier loading of freight cars, and at the recent meeting of the Transportation Division of the American Railway Association at Atlantic City, plans were made for conducting a campaign to insure heavier loading. Recommendations were adopted requiring each of the railroads to file a monthly report with the Car Service Division showing the average weight of loading per car for various commodities. In this way it is hoped that a basis will be arrived at whereby more efficient loading and handling of equipment will be obtained. It has become a habit to accept the continuous efforts of the roads to operate more efficiently as something quite a matter of course. The program of greater efficiency begun several years ago thus continues to go on without relaxation.

## Training Cooks and Waiters

**T**HE average cost of a dining car is about \$50,000, representing a carrying charge of \$3,000 a year. Entirely apart from the cost of the food served, a cost of about 75 cents per patron must be met for wages, laundry, fuel and ice. Deterioration of equipment, through wear and breakage, forms another not inconsiderable item, while the amount and cost of the food consumed is large. It is not the purpose here to inquire whether the heavy deficits incurred by the railways in feeding the traveling public bring in adequate returns, but certainly nothing should be overlooked that will tend to bring returns in the form of the good will of passengers. Many railroads have installed schools for cooks and waiters. This is a step in the right direction as, if the service is to be rendered at all, its cost is such that it should be excellent service—the kind that will make the patron a friend of the railroad and justify to some extent the loss entailed in feeding him.

## Home Routing

**A** DECADE or two, when a car left its own rails, it commonly toured most of the United States before it returned. Not infrequently it got into shuttle service of one kind or another and remained off its own rails indefinitely. This situation has been improved materially of late years, but there is still plenty of room for improvement in this respect. A number of railroads have installed and are installing more efficient home routing systems, to reduce empty car mileage as far as possible and at the same time keep the cars moving. One middle western railroad, on whose rails comparatively little traffic originates, has even found it expedient to arrange for home routing empty as soon as a loaded foreign car arrives at any destination on its line. The problem

has its individual complexities on each railroad, but it is one that will repay study with savings and, as such, it should not be overlooked on any railroad, even on those lines which originate much traffic and are able to dispose of a large number of foreign empties in the orthodox manner.

## Keep the Work Train Busy

**“I**N the spring the young man's fancy lightly turns to thoughts of love.” At the same season the maintenance of way and operating departments of the railroads turn, not always lightly, to thoughts of work trains, which, on the one hand, may be tolerated as necessary evils or, on the other hand, may be made to render a maximum constructive service. Fortunately, the widespread use of motor cars equipped with trailers, and of other self-propelled work equipment has eliminated the need of such trains in many cases where, from the nature of the work, their cost has been high, but there are still many tasks for which they are indispensable, and here the problem is to keep them employed profitably. To do so requires close co-operation from all in the maintenance department and from the operating department as well, for a work train standing on a passing track with a gang of men is consuming money at a rate not always realized by railroad men themselves. A well considered program, worked out with due regard to operating conditions, and with a foreman in charge who not only is familiar with the program but has the authority to change it in detail to meet emergencies, together with thoughtful consideration from the dispatcher, will do much to keep the work train moving and to enable it to fulfil its proper function.

## Recruiting College Graduates

**T**HE open season for signing up engineering students who will graduate from college next June is getting well under way at many institutions. Last year the graduates of the mechanical engineering department at one of the state universities received offers from 95 concerns, covering 174 positions; there were only 38 graduates available. Thirty of these 95 organizations sent 35 men to interview the graduates. The organizations which sent scouts to the university, instructed them to interview the boys carefully and check up their impressions by interviewing the professors and instructors concerning the records and personalities of the young men. Naturally they tried to select the very best material. The railroads are doing little if anything in this respect. There seem to be a small number of young men in each institution, however, who for various reasons feel that they would like to enter the railroad field. Because the railroads do not send emissaries to the colleges, they are a bit uncertain as to whether the railroads want them, and



they are also somewhat at a loss to know just how to make applications for positions in railroad service. If the railroads desire to recruit any of these young men, an indication of so doing at this time either by letters to the heads of engineering colleges or personal interviews with some of the students, will undoubtedly be appreciated and may help them to secure desirable young men who are specially interested in railroad work.

### *Adequate Railroad Delegations at Public Hearings*

**T**HE absence of imposing delegations from the railroads at commission hearings on subjects which concern the railroads has been noticed several times of late. Whatever its psychological effect may be on the officers conducting the hearing, of course, cannot be known, but it frequently causes adverse comment on the part of other interested parties and impartial observers. When a hearing is held on a subject bearing on the railroads and but few railroad representatives present an appearance, whereas other interests have literally hordes of delegates, the snap conclusion which most people form is that the railroads are not greatly concerned at the outcome of the proceeding. The exact opposite may, however, be the case. Perhaps, in many instances, the reason lies in the fact that to many other interests a commission hearing is a sort of holiday, whereas to railroad men it is often a tiresome everyday job for which familiarity has bred, not contempt, but certainly a lack of enthusiasm. Then again, other interests are often small firms or individuals, necessarily more numerous in the aggregate than railroad representatives. Whatever the causes, however, the situation is unfortunate. Railroad men having commission cases in charge deserve the support of the carriers to insure an adequate railroad delegation and an adequate presentation of the railroad point of view at every public hearing.

### *High Water and the Recapture Clause*

**C**URRENT reports of high water in the Mississippi valley bring the railroads again face to face with the prospect of extraordinary expenditures for fighting floods and for making good the damage done by wash-outs and inundations. Nothing with which the maintenance of way officer is confronted can have a more profound influence in upsetting a well-planned budget. For example, a "cloudburst" which affected the run-off of a single waterway and was of such local significance as to receive almost no notice in the newspapers, was responsible for damage on one railroad equal to 25 per cent of the normal annual outlay for maintenance of way on the entire property. Surely this is a convincing demonstration of the fallacy of the provisions of the recapture clause of the Transportation Act which require that such "excess" income shall be determined on the operating results of a single year without reference to possible losses suffered in preceding years. Obviously no year passes without serious flood damage to railroads in some part of the country but it is not often that any one railroad is confronted with extraordinary outlays from this cause in successive years. To demand that excess income shall be appropriated for a year of favorable return without some offset for the losses of the year or years preceding, is manifestly unjust.

### *1927 Operation Still More Efficient*

**A**LONG with the substantial increases in carloadings during the early months of this year as compared with last year, still greater efficiency in operation has been the rule among a large majority of the railways. A study of the freight operating statistics of 51 large steam roads, compiled by the Bureau of Statistics of the Interstate Commerce Commission, shows the substantial improvement in operating efficiency made by most of these roads in January of this year, as compared with the same month in 1926. Heavier trains were the rule, 39 of the large roads showing increases in gross tons per train, excluding locomotive and tender, and only 12 showing decreases. An increase in the amount of revenue freight handled in each train was also general. Thirty-seven roads showed increases in the net tons per train, while 13 showed decreases, and one showed the same number this year as last year. Along with the increase in carloadings, there has been an increase in the amount of freight handled in each car. The number of roads showing increases in the net tons per loaded car in January of this year, as compared with January, 1926, was 43, while only 7 showed decreases and one made no change. While the improvement in speed of car movement was less general among the 51 larger roads, it was nevertheless substantial. Thirty roads showed increases in car miles per car day, while 20 showed decreases and one was the same this year as last. Judging from these early reports, 1927 started, at least, better than 1926, both in the amount of business handled by the railways and in the efficiency with which they transported it.

### *Should Two or Four Wires or Straps Be Used in Unit Loading?*

**C**ONSIDERABLE controversy has arisen among freight claim men over the relative merits of two or four straps or wires in the unit loading of freight, which difference of opinion is jeopardizing a practice which has proved valuable to shippers and railroads. The usefulness of the practice of binding sections of the load into one unit was proved in tests made in co-operation with the Coca-Cola Bottling Company of Chicago, on May 8, 1926, when 70 barrels of syrup, each weighing 640 lb., were loaded in a car in two groups or units of 35 barrels each. The car was then bumped against other cars at rates of 8, 10 and 12 miles an hour without injury to the lading, after which it was shipped to Kansas City, Mo., via St. Louis, and reached its destination without leakage. This company has been using this method of bracing since the test and reports that while the former method of loading required heavy wooden bulkheads at the center of the car, costing from \$5 to \$10 a car, the cost of the wires or straps for the new method is less than \$2. No dunnage on bulkheads is charged the shipper where wire straps are used and the dunnage amount alone saved by this company on a load from Chicago to Denver, Colo., equals the cost of the wire. The experience of this company indicates that the controversy over the use of two or four straps or wires is trivial, since the difference in cost between two and four straps or wires does not exceed \$1.50 per car, which is small compared with the amount of damage to lading prevented and the amount saved in bracing. Besides the benefit accruing to the shipper, the railroads have profited by the adoption of unit loading in a reduction of claims. They can further profit by the extension of this method



to other suitable commodities. The Western Weighing and Inspection Bureau recommends the use of four straps or wires in unit loading.

## The Ultimate Goal

**I**T is difficult to predict what the ultimate goal will be in any of the numerous phases of railroad operation which showed such marked improvement during 1926. Each new record becomes increasingly difficult to surpass in any line of endeavor and the railroads established some real records in operating efficiency last year. A recent quarterly report of the American Railway Association's joint Committee on Utilization of Locomotives shows that on Class I roads the average freight train speed increased 7.2 per cent in 1926 as compared to 1922: gross tons per train increased 18.6 per cent; gross tons per freight train-hour increased 27.9 per cent; pounds of coal per 1,000 gross ton-miles (excluding locomotive and tender) decreased 6.8 per cent; 35 per cent more gross ton-miles were handled with 3.9 per cent fewer locomotives; and the average tons per loaded freight car increased 6.7 per cent. In spite of the commendable progress which has been made no one with a knowledge of actual present conditions on American railroads will deny the possibility of further improvement. In fact, railroad men are apparently only just finding their stride in achieving greater operating efficiency, and still more striking achievements will in all probability be recorded in the next few years. The mechanical department's share will consist primarily in raising the general standard of cars and locomotives by acquiring new and improved equipment, by carrying out extensive improvement programs and by retiring as fast as possible the large amount of equipment rendered obsolete by present-day conditions. Almost every week brings news of some road's accomplishments along this line, all of which are conducive to fuel economy, maintenance economy, more intensive use of equipment and generally improved operation.

## A Horrible Bugaboo

**I**N commenting on the Interstate Commerce Commission's decision in the case of the St. Louis & O'Fallon Railway, Senator George W. Norris of Nebraska has been quoted in the daily press as stating that "The railroads' claims for a valuation of \$11,000,000,000 or more in excess of a fair valuation were properly rejected by the commission. If these claims had been granted it would have meant an increase of at least \$600,000,000 a year in freight and passenger rates which would have imposed a destructive burden upon business and agriculture as well as the consuming public. \* \* \* Excessive transportation charges based upon the inflated valuations sought by the railroads would paralyze the productive activities of the nation and bring upon all of the people the suffering now experienced by agriculture."

Assuming for the sake of argument that the Supreme Court holds eventually that the railways are entitled to a valuation based on current prices and that this raises the valuation by the amount stated by Senator Norris, it by no means follows that rates will be increased by the amount indicated. The Transportation Act of 1920 contains the provision that the Interstate Commerce Commission shall determine what is a reasonable rate of return for the railways and that it shall then so fix rates as to enable them to earn this return. Yet in only one

year since the act became effective has this return, based even on the *commission's own tentative valuation*, been received by the owners of the properties and the deficiency now amounts to over a billion dollars. Furthermore, and in spite of the fact that the roads have not been earning this standard return, the tendency of rates has been steadily downward and the average rate received per ton mile in 1926 was less by 0.193 cents or 15 per cent than in 1921.

It may also shed some light on the dire consequences that Senator Norris predicts from a \$600,000,000 increase in rates to call attention to the fact that if the traffic handled by the railways in 1926 had earned the average ton-mile rate prevailing as recently as 1921, the roads would have received for their services \$856,994,000 more than they actually did. In other words "business and agriculture" have been saved this amount by reductions in the rates within the last five years and the total possible increase forecast by Senator Norris would fall more than \$250,000,000 short of the saving that has already accrued to users of railway service since 1921.

## Cotton and the Southern Railway

**R**AILROAD annual reports may be classified into two general groupings. The first would include those that give only a limited amount of information beyond the income account, general balance sheet and certain necessary tables of statistics. These reports, while leaving much unsaid, are so much more voluminous than the annual reports issued by all but a very few industrial or public utility corporations that they are seldom criticized except by those who may prefer the more interesting reports of the second class or group. The use of the word "interesting" in connection with a railroad annual report may be questioned. There are many reports, however, that really do have that attribute, which they usually attain by what is included in the president's introductory remarks. In such cases, it will be found that the executive has made an effort to explain to the stockholders some of the more important features brought out in the array of figures and to point out, if possible, future trends.

These thoughts are suggested by the rather successful performance in this direction in the recently issued annual report of the Southern Railway abstracted in the *Railway Age* of last week. In this instance the president will be discovered to have said, with reference to an increase in the debit per diem charges, that "An explanation, but not an excuse, for this is in order," which indicates no small degree of regard for the feelings of the stockholder. The report also has some rather pertinent things to say about taxation. Taxes paid by the Southern Railway were 9.6 per cent greater in 1926 than in 1925; they were only a slightly less amount than the payments in dividends and took 6.7 cents out of each dollar of total operating revenues. As recently as 1921 they took only 3.6 cents. "The steady tendency of increase of this fixed charge," the executive says, "over which management has no control may safely be said to be an element of danger to the financial outlook of the state governments as well as this company."

A feature of the Southern report, however, is the relationship that two of the most important industries of the South play in the Southern Railway's welfare. Thus the 1926 cotton crop broke all previous records, notwithstanding which the proportion of cotton tonnage to the Southern's total traffic was only 1.73 per cent. On the other hand, the Southern is supposed to have become

prosperous primarily because of the great industrial development of the Piedmont territory in textile manufacture. While it is true that the cotton mills in cotton growing states used in 1926 nearly  $2\frac{1}{2}$  times as much cotton as the mills in other states—they were nearly equal as recently as 1915—the fact remains that even manufactured textiles constituted in 1926 only 0.43 per cent of the Southern's total revenue tonnage. Apparently, therefore, the value of the textile industry to the Southern lies not in the traffic the mills produce but in the increased purchasing power of the areas in which the mills are located.

The real point comes, however, in the situation with reference to cotton growing. While the cotton crop may still be a factor of basic importance to the Southern Railway, there is now sufficient diversification of activity—industrial or otherwise—in the territory served by that system so that it can no longer be expected to suffer merely because a single factor—the price and purchasing power of raw cotton—happens to be out of line. This was not formerly the case. It represents an ideal to which the Southern management has been aspiring for years.

## An Opportunity for the Rail Manufacturers

IN spite of the fact that the rail problem has been before the railways and the rail manufacturers in a more or less critical form for more than 15 years, one need only glance through the report presented by the Rail committee of the American Railway Engineering Association at the convention last month to realize that the solution has not yet been reached. Statistics presented in that report show that the number of failures reported has not shown any marked reduction in the last few years.

Of particular importance because of its menace to safety of travel is the type of failure known as the transverse fissure, with respect to which the committee stated that, "The gravity of the situation is indicated by the fact that transverse fissure rail failures are now occurring at the rate of nearly 4,000 per year." In a paper presented before the New England Railway Club on April 12 and abstracted on a following page, Charles W. Gennet, Jr., cited the record of one prominent road which removed 2,700 broken or failed rails from 4,716 miles of tracks last year, of which 586 were transverse fissures. In other words, this road removed every day an average of seven rails from its tracks because of failure and one with a transverse fissure every 15 hours. This latter type of failure is not new for it has been definitely recognized for more than 15 years. In view of this long standing menace it is pertinent to ask again, as we have asked on several occasions previously, what has been done to overcome this hazard. It is true that many studies have been made but they have been largely individual and their conclusions have been more productive of controversy than of the reduction of the hazard. These studies have been characterized particularly by a lack of united effort on the part of the railways and the manufacturers.

In the paper referred to above Mr. Gennet offers a suggestion based on the policies of other industries that provide equipment for the railways which is worthy of careful consideration. This suggestion is to the effect that the manufacturers themselves take the lead in developing a rail that will meet the present day demands of

service of their customers—the railways. In support of this suggestion is the fact that the manufacturers are of necessity more thoroughly and more intimately versed in metallurgy and in the properties and possibilities of steels of different characteristics than the railways can ever be. Furthermore, they know the possibilities and the limitations of mill practices whereas their customers do not.

Of even greater consideration, however, is the fact that American industry has been built on the success attained by one group of manufacturers after another in so perfecting their products as to give their customers improved service. Most of these important advances have been made almost entirely by the manufacturers on their own initiative, spurred on by the desire for preferred attention from their customers. This spirit has characterized the locomotive development of recent years during which most of the outstanding improvements have originated and been promoted by the builders. It has also been found in the signal and train control fields where the leadership in the perfection of new equipment has rested with the manufacturers. It prevails in many other industries supplying essential equipment to the railways.

The steel rail problem will be solved most quickly when the industry producing steel rails accepts the responsibility for producing the necessary quality of steel to meet modern service requirements, rather than confining its interest in this problem to "meeting the customer's specifications." It is to be said to the credit of the manufacturers that there are certain recent indications that some or all of them are coming to this point of view and there now appears to be a greater willingness among them to approach the problem from the standpoint of the customer's needs. The steel industry can render no greater service to its largest customer than to throw itself wholeheartedly into the solution of this problem, for when it does this the solution will not be long delayed.

## Dividends Now Exceed Taxes

IN spite of all that is said about the growing burden of railway taxes, there does not seem to be very much done about it. The difficulty may be that every owner of real or personal property is enough worried about meeting his own ever increasing tax bills and is perfectly satisfied that the railways should worry too. The railways, indeed, have reason to worry.

In 1916, the amount the railways paid in taxes was about half the amount they paid in dividends. In the

Year	Taxes		Dividends *	Ratio Taxes to Dividends (per cent)
	U. S. Government	Total		
1916	\$12,530,949	\$162,952,266	\$306,176,937	53
1917	57,957,420	215,861,346	320,395,779	65
1918	53,507,951	224,599,115	275,336,547	82
1919	41,742,113	233,716,608	278,516,908	84
1920	50,542,597	283,813,929	271,731,669	104
1921	38,898,318	277,899,481	298,511,328	93
1922	52,648,696	302,195,425	271,573,751	111
1923	77,699,877	333,033,560	296,127,048	112
1924	74,963,937	342,449,048	320,429,767	107
1925	86,474,540	358,516,046	342,020,885	105
1926		388,682,377	392,791,959	99

\* Does not include stock dividends.

years immediately following the taxes increased markedly and the amount paid in dividends decreased, with the result that in 1920 the taxes exceeded the dividends. The dividends were ahead in 1921 but in each of the four years, 1922 to 1925, the taxes were greater than the



dividends. The relationship was at its most disadvantageous position in 1923, when taxes exceeded dividends by 12 per cent. In 1924 and 1925, increased dividend disbursements tended to restore a parity between the two but even in 1925 the taxes were 5 per cent in excess of the dividends. In 1926, dividends exceeded taxes by one per cent.

### *Federal Taxes Increase*

There has been much said about the reductions in the burden of federal taxation and the continual increase in the burden of state and local taxation. It has been repeatedly suggested that the states should imitate the federal government with respect to taxation policy. The truth of the matter is that the railroads are continually paying greater taxes to the federal government and that their federal taxes are increasing at a much greater ratio than their state and local taxes. Thus, the taxes paid by the railroads to the United States Government in 1925 were seven times those of 1916, whereas their total taxes were  $2\frac{1}{2}$  times those of 1916. The chief explanation of the greater increase in federal taxes was the war taxes. It will not pass notice, however, that even with the more liberal federal tax laws, the taxes paid to the federal government by the railroads have increased in each year since 1921, and, in 1925, besides being the greatest the railroads ever paid, constituted no less than 24 per cent of all railroad taxation. The figures for the taxes paid by the railroads to the federal government in 1926 are not yet available. One reputable estimate has been made that one-half the increase in railroad taxes in 1926 over 1925 was in the federal corporation income taxes.

The total railroad dividend disbursements for 1926 are reported in the article "Preliminary Statement of Capitalization and Income" appearing on another page of this week's issue. The taxes paid in 1926 totaled \$388,628,377, or  $8\frac{1}{2}$  per cent more than in 1925. The dividends paid in 1926 totaled \$392,791,959 showing an increase over 1925 of 15 per cent. This is due to larger net earnings and to the more liberal dividend policies permitted thereby. It represents an improvement but when it is realized that the 1926 dividends exceeded the taxes by only one per cent, it can readily be seen that there is still room for considerably more improvement, and that at present the relationship between taxes and dividends is altogether too close. Surely no other than the repressively regulated railroad industry could expect to call itself prosperous if it continued indefinitely to give the tax-gatherers as great a return as it yielded to the partners in the enterprise.

## Making Railway Returns "Fair"

**I**N view of movements now under way affecting the rates the railways may charge, and especially the wages they must pay, a review of the net return they have earned under the Transportation Act is apropos. In 1926 for the first time the Class I roads as a whole earned as much as the Interstate Commerce Commission has held would be a "fair return," although the total net operating income was so divided between the eastern, southern and western groups of railways that the western lines still failed to reach the goal. There is, however, a widespread belief that the railways are highly prosperous, and can stand advances in wages, and perhaps also, some reductions of rates. The fact seems to be quite generally overlooked that both advances in

wages and reductions of rates have been slowly but steadily going on and that within recent months they actually have been reducing net operating income, which was substantially less in both December and January than in the corresponding months of preceding years.

The courts long have held that the railways cannot be constitutionally restricted to less than a fair return annually. The Transportation Act directed the Interstate Commerce Commission to so adjust rates as to enable them to earn such return, and the Commission held in 1920 that this would be 6 per cent and in 1922 that thereafter it would 5.75 per cent, and made a tentative valuation on which the return was to be computed. It is obvious that rates cannot be so adjusted as to enable each group of railways to earn exactly 5.75 per cent in every year, and it necessarily follows that to give effect to the purpose of the law rates must be so adjusted that the "fair return" will be earned as an annual average over periods of years. In the six years since 1920, the Class I railways as a whole have failed by just about one billion dollars to earn an average of 5.75 per cent on the Commission's tentative valuation. How much would they have to earn during the remaining four years of a ten-year period ending with 1930 to get, during the entire period, an average yearly return of 5.75 per cent?

### *Six Years' Earnings*

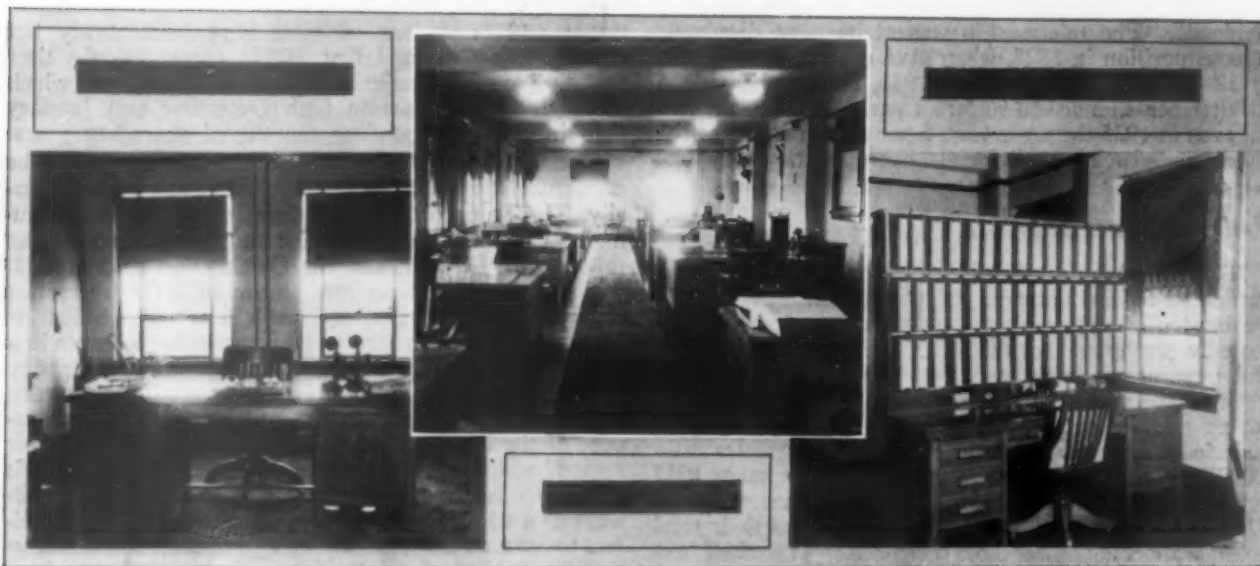
In the six years ending with 1926 the railways of the Eastern district (including the Pocahontas region) earned an average of 5.10 per cent on their tentative valuation. In order to raise their average over the ten-year period to 5.75 per cent they would have to earn an average of 6.73 per cent during the next four years. In 1926 they earned 6.55 per cent, showing that even in that year of record-breaking traffic and unusual prosperity they were not earning enough to offset the shortages under a fair return incurred in previous years.

During the last six years the railways of the Southern district have earned an average of 5.51 per cent on their tentative valuation, and to raise their average over a decade to 5.75 per cent they would have to earn 6.11 per cent during the remaining four years.

The railways of the western district during the last six years have earned an average of 4.49 per cent on their tentative valuation, and to raise their average for a decade to 5.75 per cent yearly they would have to earn 7.65 per cent during the remaining four years. They earned only 5.25 per cent last year.

The Class I railways as a whole during the last six years have earned an average of 4.89 per cent on their tentative valuation. To increase this for the entire decade to a yearly average of 5.75 per cent they would have to earn 7.05 per cent during the next four years. They earned 5.99 per cent in 1926.

It should be noted that the Commission's tentative valuation was based almost entirely on pre-war wages and prices and that for this reason the railways contend it is too low. The figures above given are based upon the provisions of the Transportation Act and on the Commission's own interpretation of what is required under the provisions of that act. If it is reasonable to restrict the railways to rates that will produce less than a fair return in a period of poor general business, then it must also be reasonable to let them earn proportionately more when general business is good. Otherwise, the constitutional right to a fair return, the provisions of the Transportation Act regarding it, and the Commission's determination of what it is would become meaningless futilities.



In the New General Stores Office—Purchase Order Books on Left

## Contracts and Reliable Deliveries Speed Purchase Operations<sup>\*</sup>

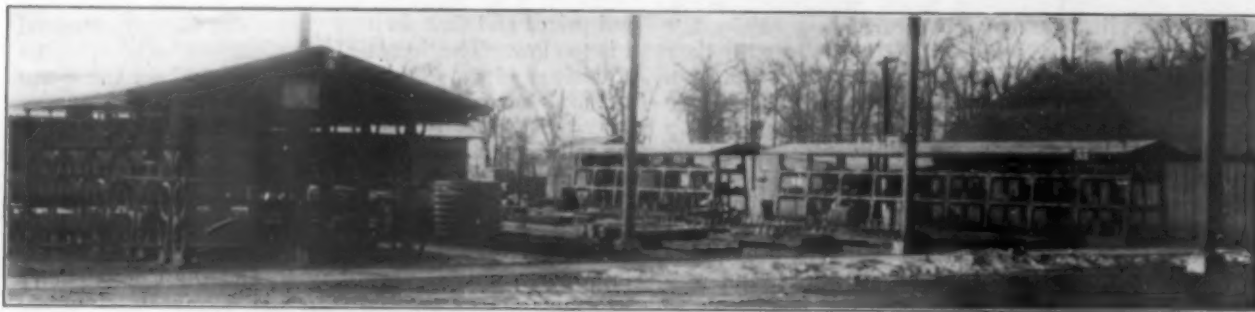
*C. & O. finds way to lower stocks by cutting corners  
off buying cycles*

WHEN the Chesapeake & Ohio launched its campaign in 1921 for better supply conditions, it did not start in the storehouse as the two preceding articles about this road's practices might be taken to indicate. Instead, the first move, after establishing an organization, was made in the purchasing department. The aim was two-fold. It was to install a system of purchasing that would put the Chesapeake & Ohio in a position to buy most advantageously; but more particularly at that time, it was desired to eliminate slow and uncertain deliveries. Today, as a result of methods employed, it is conservatively estimated that 60 per cent of this road's miscellaneous materials and supplies are purchased on the same day that the order is received rather than from 15 to 20 days later, and that 90 per cent of all orders are filled on time.

<sup>\*</sup> This is the third and final article on the Chesapeake & Ohio's supply work, the first appearing in the issue of March 12, and the second March 19.

A system of purchases that relies upon standing agreements and guaranteed deliveries is credited in large part with these results. These agreements are of the type made with a dealer in advance of needs under which the dealer contracts to fill at an agreed price all orders for prescribed supplies which develop during the period of the agreement. It is not an agreement under which the railway contracts in advance to buy a definite quantity of material, for it neither limits the quantity a railroad may buy nor commits it to buy beyond the actual needs that develop. The railroad's contract is simply to buy "such as the railway may desire" during the stipulated period.

Where such an agreement exists each order received by a purchasing department of a railroad can be forwarded at once. If there is no existing agreement, it usually devolves upon the purchasing department, in keeping with the principle of buying all supplies on a competitive basis, to hold the storekeeper's order until



Less Stock Is Needed Where Deliveries Are Quicker—Locomotive Parts at Division Storehouse



inquiries for prices have been sent out to a selected list of supply companies and their respective tenders received and passed upon, a procedure which adds anywhere from 10 days to two weeks or more to the time elapsing from the day the need develops to the day the order leaves the purchasing department, even when the transaction is perfectly regular and not supplemented or entangled by other issues.

#### Over 1,000 Contracts

Standing agreements of the foregoing type are not new in railway buying. Their advantages have been long established (at least as long ago as 1902 when the Thorne agreement, after which the Chesapeake & Ohio agreement is modeled, was developed), but it is doubtful if the principle has been given a wider application than on this road, where the number of contracts has been increased in the course of five years from 40 to more than 1,000, until at the present time from 60 to 80 per cent of all materials and supplies of this road are purchased under such agreements.

In developing these agreements, it is a cardinal principle of present Chesapeake & Ohio purchasing policies that competition must be fostered in all transactions, and that no agreement, whether for future orders or for a single purchase, should suffer on this score.

The first step in accomplishing this is an inquiry which sets out clearly and concisely a description of the article that will allow true competition, the quality being fixed, as far as possible, by specifications, in which the purchasing branch of this road so thoroughly believes as to have been a large factor in their increase in the last six years from 30 to 300. In addition to the clear description, supplemented by specifications, invariably prepared with



In the Pricing Bureau at Huntington

the aid of the supply organization, and which bidders are given to understand will be enforced, the inquiries require the quotation on the basis of unit price, and not discount, and the f.o.b. terms to which the proposal shall be subject. It is the policy, moreover, that all purchasing shall be determined by the tenders submitted and not by all subsequent process of trading by way of compromising specifications, or revising prices.

#### Dealers Guarantee Delivery

In all tenders the dealer is required to include positive statement of the number of days within which he agrees to make delivery, with the understanding that the time specified is just as important as the price quoted and must be respected in filling all orders. Statements which appear in purchase documents are of interest in this

connection. The first one is the inquiry form where the printed matter at the top of the page includes the following words, all capitalized to set them off from other instructions:

STATE NUMBER OF DAYS AFTER RECEIPT OF ORDER THAT YOU WILL SHIP.

In the same form is a second statement which is printed in red ink across the bottom of the page as follows:

TIME OF DELIVERY MUST BE MADE AS MUCH A PART OF YOUR PROPOSAL AS THE PRICE.

The next document is the contract where the conditions governing the filling of orders are covered by the following clause:

It is hereby agreed and understood that all orders shall be filled in not to exceed.....days from the date received, except



The Office of the Section Stockman Is Where the Purchase Cycle for Much of the Supplies Begins

in case of serious fires, strikes, differences with workmen, accidents to machinery or other causes beyond the control of the seller.

Finally, to remind every dealer of his obligation to deliver, the following statement is typewritten in capital letters in plain sight on the face of every order, whether for material covered by a standing agreement or not:

#### DELIVERY:

SHIPMENT TO BE MADE IN NOT TO EXCEED..... DAYS FROM DATE THE ORDER IS RECEIVED. FAILURE TO MAKE SHIPMENT AS SHOWN HEREON GIVES THE PURCHASER THE RIGHT TO CANCEL.

The subject is again referred to in the printed instructions on the back of every order form as follows:

If there is any part of this order you cannot fill promptly or within the time specified, notify the purchasing agent at once. We reserve the option of cancelling this order if it is not filled promptly.

This road is not satisfied to have the dealer merely agree to deliver "as prompt as possible" or words to that effect, but demands that deliveries shall be provided for and made on the basis of a specifically designated number of days, which the dealer may name but which he may not overlook.

In addition to the above, supply companies awarded contracts for orders involving large tonnage, are further given to understand that when the agreement calls for shipment in excess of 30 days from the date of receiving the order the dealer is not authorized to make an immediate shipment, thus dumping the supplies on the railroad, but that within reasonable bounds, the stipulated

time is intended to schedule the receipt of material on the property as well as to define the dealer's responsibility for shipping on time.

The position taken by this road on the question of deliveries is illustrated in the copy of a reply made to a supply company which had failed to live up to the delivery clause in its agreement.

Yours of March 26. We have taken the position that deliveries are as much a part of any agreement as quality and price and must be carefully checked and recorded. We do not attempt to dictate to the seller the deliveries he shall make any-

long before the stipulated time is to hold up the invoices until the due date of the shipment, a rule, however, which is only applied in extreme cases because of the injurious effects it has on the records of material received, which is always determined from the invoices passed instead of from the receiving records.

The function of these changes in the purchasing work was largely to expedite deliveries on the one hand, by avoiding delays in the purchasing office, and, on the other, to schedule deliveries for the aid this would be in planning initial orders to avoid carrying stock on hand any longer than necessary before its use. To perfect this plan, the number of agreements was increased steadily and certain work was done in the storehouses. Many of these changes, which were made in part or entirely to expedite and simplify procurement, include those already mentioned, such as standardizing material on the road, its arrangement in classes, the adoption of the practice of having all outlying stores take inventory of designated classes of stock on the same day and issuing their orders for material on the general store at the same time.

#### Stores Make Purchase Orders

In this connection, however, the practice of making all purchase orders in the general store instead of in the purchasing offices is particularly of interest, although this is not a new practice in railway storekeeping. The orders are made by an order bureau, consisting of one chief, two order clerks, one shop order clerk, and a stenographer. As soon as inventory is taken in a class of stock in the general storehouse, the stock book is marked up with the number of each item to order with all other data, and is delivered to this bureau where the order is made directly from the books on a fanfold machine, of which there are two, six or more copies of the order being made. The original constitutes the purchase order which the purchasing department sends to the supply

THE CHESAPEAKE AND OHIO RAILWAY COMPANY Form 5-12-Stationary Part 1  
OFFICE OF DIRECTOR OF PURCHASES AND STORES

W. C. FLEMING  
DIRECTOR OF PURCHASES AND STORES  
R. M. FLEMING  
PURCHASING AGENT

Order No. P-4691

RICHMOND, VA.

Please furnish The Chesapeake and Ohio Railway Company the following articles, and render separate invoice to station with Bill of Lading or Shipping Receipt attached for each shipment, routing same to Purchasing Agent, The Chesapeake and Ohio Railway Company, Richmond, Va.  
Follow carefully the instructions on other side of this order.

ITEM NUMBER 15-4675

THE FOLLOWING CAST STEEL CASTINGS, C&O SPEC. #71-C.

100	C-1721	SIDE PLATES. BP-20324.
100	C-1722	" " "
100	C-1730	BODY BOLSTER CENTER BRACES.
10	C-1733	TRUCK SIDE BEARING SHOES. BP-20324.
50	C-1743	BODY BOLSTER CENTER BRACES. BP-20432.

AGREEMENT NO. 18.1

DELIVERY:  
SHIPMENT TO BE MADE IN NOT TO EXCEED 60 DAYS FROM DATE THE ORDER IS RECEIVED.  
FAILURE TO MAKE SHIPMENT AS SHOWN HEREON GIVES THE PURCHASER THE RIGHT TO CANCEL.

INSPECTION:  
NOTIFY ENGINEER OF TESTS, C&O RY. CO., RICHMOND, VA. FIVE DAYS IN ADVANCE WHEN MATERIAL WILL BE READY FOR INSPECTION.

Mark and Ship to THE CHESAPEAKE AND OHIO RAILWAY COMPANY  
Care J. P. KAVANAGH, GENL. STKPR.  
SEC. 15-SC P-4691  
Via HUNTINGTON, W. VA.

Purchasing Agent

MARK THE ORDER NUMBER ON THE PACKAGES

#### A Typical Purchase Order—Note Delivery Clause

more than the price he shall charge. Every inquiry requests that you indicate the number of days from the date you receive the order that you will make shipment, as well as the price you will charge, delivered to our lines at a specified junction. Your proposals are tabulated with others and the business awarded on the basis of quality, delivery and price. In no case do we ask you for advance delivery unless there is some special reason and we only expect you to comply with the request in case you can do so without embarrassment or increased cost, and if there is an increased cost, we expect to pay it.

#### Delinquent Dealers Penalized

As the agreements are made and orders applied against them, it devolves upon the purchasing department to see that the materials are shipped as agreed upon, which is done by a systematic procedure of joggers, beginning 10 days before the delivery date as disclosed by markers in the file of purchase orders. The penalty for failure to fill orders in the time agreed upon, where the purchasing department has not had occasion to modify the agreement in any particular by reason of extenuating circumstances brought to its attention, has already been outlined. It is to cancel the agreement and perhaps to withdraw the firm's name from the list. The penalty where companies persist in dumping materials on the property



A Typical Stockman's Office for Inside Stock

company, the second is a pink copy which also goes to the purchasing department as the store order authorizing the purchase, a third is an unruled pink copy for the section stockman's record, a fourth is an unruled white copy perforated diagonally across one end for the binder of the tracing clerk in the purchasing department where the corner is torn off when the order is shipped, a fifth is a copy for the order bureau's record, and a sixth is a specially ruled copy for the general storekeeper's file



which provides columns in which to keep a record of the date of purchase and the date of each shipment made.

If there is an agreement under which any item to be ordered is covered, the number of that agreement and the specified delivery are stamped in the stock book for the information of the order bureau. Under such conditions, the bureau refers to a card index file containing an up-to-date record of each agreement for which the name of the company is obtained and affixed to the order. When the order reaches the purchasing department nothing remains but to record the order, stamp the purchasing department's date upon it and mail it out for filling.

In those cases where no agreement is involved, the order is made out for as many items in the class as can be recorded on a single copy and this order also includes a time of delivery clause, an additional clause providing for the submitting of samples to the testing department, if necessary, and all other information customary in orders placed against standing agreements, except only the name of the company. When these orders reach the purchasing department, an inquiry must be sent out for prices, unless the order covers accessories which must be purchased from the manufacturer of the equipment to be repaired. If the tenders on orders put out for bids disclose that part of the order must be placed with one company and part with another, new purchasing orders must be made in the purchasing department. The number of such instances, however, is small as indicated by the fact that out of a total of 410 purchase requisitions received by the purchasing department on a representative day 315, or 76.8 per cent, were sent out on the same date, leaving only 33 for the purchasing department to hold for prices. Moreover, it is contended that at no time has the number of these splits in original purchase orders

and injector parts. Excepting the lumber, there was a total of 70 orders, which contained 20,426 items, including one order for 10,000 keys. Of these orders, 43, containing 19,123 items, including the 10,000 keys, were covered by standing agreements which meant that they would leave the purchasing office on the same day as received. The remainder dealt largely with special parts which would normally be furnished by the companies manufacturing the original article or device upon which they were to be used and for that reason would also pass through the purchasing department promptly. A partial list of these orders, showing the total number of items to an order, the kind of material in general terms, and days of delivery are given below:

**Partial List of Purchase Orders Leaving General Storehouse  
January 27, 1927**

Items	Kind of materials	Contract	Days to deliver
1	vise	yes	10
6	stencils	yes	15
1	pipe stock	no	30
40	drill sockets	no	30
9	reams	no	30
30	door spreads	no	60
10,000	keys	yes	15
75	yokes	no	30
150	side bearings	yes	60
100	brake heads	yes	45
24	tools T. & T. dept.	no	30
9	lubricator parts	yes	15
200	weather strips	yes	15
100 ft.	cord	no	30
10	sheaves	no	30
10	sheaves	no	30
3 sets	dies	no	30
3	gas nipples	no	30
28	welding parts	yes	10
10	heating parts	yes	10
12	heating parts	no	30
6	grain doors	no	30
2,495	dust guard wedges	yes	10
267	jack levers	yes	20
1,192	dust guards	yes	10
3	ventilators	no	30

Note—The foregoing orders are listed in the order of their examination without omissions.

A random check was made of the general stores binder of purchase orders placed in September and November, these months being selected to make sure that the shipments had been completed in all cases. Out of 59 orders picked at random from various parts of the binder examined, 46 were covered by standing agreements and all were covered by guaranteed deliveries. A total of 41 of these orders were shipped on or within the time agreed upon.

**Partial List of Random Orders Checked for Delivery Dates**

Material	Contract	Days Agreed to Ship	Days Shipment Completed
Center plates	yes	30	27
Center plates	yes	60	44
Journal lids	yes	20	30
Draft gear	no	30	28
Draft gear	no	30	27
Side frames	yes	30	32
Sander nozzles	yes	at once	9
Knuckles	yes	30	30
Coupler parts	yes	30	9
Couplers	yes	30	17
Malleable castings	yes	60	95
Motor car parts	yes	30	12
Malleable castings	yes	60	46
Piston rings	yes	30	28
Crank pins	no	30	30
Tool steel	yes	40	40
Spring steel	no	30	19
Steel plates	yes	60	28
Friction tape	yes	14	20
Axle lighting	yes	30	30
Electric material	yes	30	17
Cross arms	no	7	4
Galvanized fittings	yes	30	41
Electric cord	yes	10	33
Boiler tubes	no	at once	34
Sheet steel	yes	60	18
Boiler tubes	yes	30	4
Steel casting	yes	30	64
Draft gear	yes	60	49
Couplers	yes	30	14
Paints	yes	10	16
Paints	yes	21	7
Paints	yes	14	16
Paints	yes	10	16
Dusters	yes	3	15
Cuspidors	yes	20	20
Crayons	yes	15	7

(Table Continued on Following Page)



In the Order Bureau at the General Store—Note Fanfold Machines in Left Foreground Where Purchase Orders Are Made

been so numerous as to overbalance the good effect of having the original order made in the stores department.

**Results Striking**

The immediate results under this system of ordering and purchasing are indicated in various ways. Attention is called first to purchase orders which left the general storekeeper on January 27, a typical day. The majority of these orders came from three sections, largely comprising orders for replenishing stocks of lumber, lubricator

(Table Continued from Preceding Page)

Material	Contract	Days Agreed to Ship	Days Shipment Completed
Welding cable .....	yes	60	20
Copper terminals .....	yes	30	11
Blacksmith coal .....	yes	4	15
Jacks .....	yes	30	14
Motor car parts .....	yes	30	12
Asphalt .....	yes	2	4
Ditcher parts .....	no	at once	22
Stocker parts .....	no	30	18
Grease cellars .....	yes	30	29
Fire doors .....	yes	60	30
Booster parts .....	yes	60	19

On January 30, the actual number of orders overdue at Huntington amounted to 71, which is unusually small in view of the amount of orders placed during the period involved.

The foregoing deals with the conditions at the general store, but not with conditions at division stores, which must place all of their requisitions for material on the general store and depend upon the general store to supply them promptly. The general store is expected to guarantee delivery to division stores in 15 days on regular stock. A glance at division store orders in the various sections of the general store and also the files of tracers from division stores make it evident that the division and general stores still have their troubles with overdue shipments, but the service obtained by the division stores is unusual. The conditions at Peru, Ind., a division point which disbursed \$746,000 of material in 1926 and reported a turnover of 40.67 per cent per month during that year, offers a striking illustration of this. In the month of October, 1926, the store issued 306 requisitions on the general stores, containing 2,262 items. Out of this number, 1,168, or 72 per cent, were received in seven days. After placing the order, 2,064 or 90 per cent were filled in 21 days, 95 per cent in 30 days and 100 per cent in 60 days.

Emergencies still develop where material, though not anticipated, must be received as promptly as possible. To meet these emergencies, it is provided that the orders must be marked emergency orders to designate them from routine orders which need not be filled immediately and baggage cars are operated each way from Huntington every second day in which emergency shipments can be made.

### Novel Pricing Methods

In any discussion of the Chesapeake & Ohio's undertaking in the control of its supplies there are a few details which warrant attention, no so much for the direct effect they have had on the service this organization is now rendering nor upon the results that have been accomplished in reducing investments as for their novelty or general utility in the field of departmental operations. Prominent among these is the road's bureau of pricing. This is an institution of the new store department and not of the purchasing department and is maintained at the general store at Huntington. Formerly all prices were kept in the price book on the Chesapeake & Ohio and it took nine price clerks to handle the work. Now prices are kept on a card system and there are only four price clerks in the bureau, which also has other functions. There is a single card for every item carried in stock and columns on this card in which to record every purchase invoiced, the number and the unit price of the article. The description of the item, and the item number are typewritten in the space at the bottom of the card where a space is also provided for inserting in pencil the last unit price. These cards overlap each other in metal trays, so that each card is covered by the card above it, except for the lower portion which carries a description of the item and the last unit price. The trays hold cards on both sides and are fastened in racks which support each tray or panel in an upright position where it can be

swung from one side to the other like the page of a book to bring the side of the tray wanted to a convenient position for use. There are four of these racks in the price bureau of the Chesapeake & Ohio's general store, each supported on a separate table and the racks carry the trays on both sides so that one price clerk can work from one side while another can work from the opposite side.

All invoices received are sorted according to item num-

Form P. 61	Agreement No. 234.4
<b>THE CHESAPEAKE AND OHIO RAILWAY COMPANY</b> <b>THE HOCKING VALLEY RAILWAY COMPANY</b>	
Richmond, Va., March 6, 1927.	
We, John Doe & Company, New York City, hereby agree to furnish deliver promptly to THE CHESAPEAKE AND OHIO RAILWAY COMPANY, THE HOCKING VALLEY RAILWAY COMPANY, and the Railway Companies agree to purchase of this company such	
Description:	Water Space Staybolts - Threaded
as the Railways may desire from: April 1, 1927 to July 1, 1927	
Specifications:	G&O Drawing 14-9-L - G&O Specification No. 64-D and details shown in attached Schedule "B"
Inspection:	All material and supplies purchased to your specifications are subject to inspection and acceptance at destination (unless otherwise specified). All material and supplies not covered by specific specifications must be first class in every respect as regards material and workmanship and suitable for the purpose for which it is bought, subject to inspection and acceptance at destination (unless otherwise specified).
Decline to Price:	The seller agrees that if he should make lower prices for any of the material covered by this agree- ment during the life of same, he will give THE CHESAPEAKE AND OHIO RAILWAY COMPANY, THE HOCKING VALLEY RAILWAY COMPANY, and subsidiary lines, the benefit of same.
Price:	Per attached Schedule "B"
Filling of Orders:	It is hereby agreed and understood that all orders shall be filled in not to exceed 30 days from the date received, except in case of serious fire, strikes, differences with workmen, accidents to car- riers, or other causes beyond the control of the seller.
Shipping Point:	Ship from Richmond, Va. - Via G&O Railway
Terms of Payment:	30 Days Net - No cash discount -- to be shown on invoices
Yours truly,	
By	
ACCEPTED:	
THE CHESAPEAKE AND OHIO RAILWAY COMPANY	
THE HOCKING VALLEY RAILWAY COMPANY	
By _____ Director of Purchases	

### The Form of Standing Agreement Used by the Chesapeake & Ohio—All Terms on One Page

bers and the invoices are distributed to the price clerks accordingly. Their function then is to compare the invoice price of each item against the last invoice price on the card for this item and to record the invoice and the unit price wherever any change is made, and revise the unit price at the bottom of the card. These invoices are then filed. The next operation is to take up all the shop requisitions upon which material has been issued and also all of the transfers of stock made to outside points and parcel them out to the desks where the clerk obtains the unit price from the tags and applies it. A comptometer operator then takes all shop requisitions or transfers, computes the total charge and makes the extensions. This bureau handles about from 100 to 250 invoices a day in addition to about 2,360 shop requisitions, and about 400 transfers. All invoices and trans-



fers go to the price bureau each evening and usually the day's work is completed by noon on the following day. The precision and expedition of this department's operation contributes substantially to the orderly procedure of the supply work.

#### Quick Work of Inventory

One of the best examples of the system with which the supply operations are now carried out as compared with those of the earlier period as well as the illustration of the further respects in which the pricing bureau functions is found in the method of taking annual inventory.

1. Order number must be shown on each package and on the BILL OF LADING.
2. No charges will be allowed for BOXING, PACKING, OR DRAYING.
3. Material not in accordance with specifications will be REJECTED and held subject to Shipper's order and must be replaced immediately, unless otherwise instructed.
4. If there is any part of this order you cannot fill promptly or within the time specified, notify the Purchasing Agent at once. We reserve the option of cancelling this order if it is not filled promptly.
5. Each invoice must give reference to the number of the order as well as the initial and number of each car shipped on that order. The invoice must show the point from which the shipment was MADE as well as point of DELIVERY.
6. Each package, box, etc., must show the name of the shipper and point of shipment as well as our order number.
7. Invoices must show discount offered for cash in 10 days. Bills will be paid by cash voucher. NO DRAFTS WILL BE PAID.
8. FREIGHT MUST BE PREPAID TO POINT OF AGREED FREE DELIVERY.

#### The Printed Instructions on the Back of All Inquiry and Purchase Order Forms

It used to take weeks to complete an annual inventory of materials and supplies on the Chesapeake & Ohio and the cost and confusion were large. By way of comparison, the inventory for 1926 was completed in a single day and the official record with the prices extended was ready for the comptroller within four weeks of the time the inventory was taken. Under the present plan October is the last month recorded in each stock book and the remaining space on the page is comprised of three columns; one for the record of inventory of October 31, the second, for the unit price of the article, and the third column for the amount. Taking inventory consists simply of taking stock in the customary manner, following which the stock books are brought in to the price bureau where the procedure of pricing and extending is followed identical to that involved in pricing transfers and shop requisitions. The stock book is then sworn to and the entire volume submitted to the comptroller for check. The cost of taking annual inventory on the system was \$2,359 in 1926 as compared with \$3,359 in 1925, and \$4,785 in 1924.

THE METROPOLITAN LIFE INSURANCE COMPANY, New York City, reports that in the five years ending with 1926, it paid out to railway employees on group insurance contracts, more than \$9,000,000. In this five-year period, the amount of insurance covered by group contracts has increased from \$15,017,000 to \$238,657,000.

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading for the week ended April 2 reflected to some extent the effects of the bituminous coal strike which began on April 1 by falling below the million mark, which had been attained in the three preceding weeks. The total was 992,745 cars, an increase of 64,442 cars as compared with the corresponding week of last year and an increase of 69,345 cars as compared with 1925. Coal loading for the week amounted to 175,176 cars, as compared with 206,990 cars the week before, but an increase of 18,259 cars as compared with the corresponding week of last year.

All districts showed increases in total loading as compared with the corresponding weeks of both of the last two years, but decreases were shown in the loading of coke, forest products and ore. Miscellaneous loading showed an increase of 38,058 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

#### Revenue Freight Car Loading WEEK ENDED SATURDAY, APRIL 2, 1927

Districts	1927	1926	1925
Eastern .....	235,891	228,102	223,994
Allegheny .....	208,845	192,543	191,947
Pocahontas .....	57,186	46,305	42,166
Southern .....	163,138	157,009	157,569
Northwestern .....	116,670	110,206	114,333
Central Western .....	135,708	125,402	120,983
Southwestern .....	75,307	68,736	72,408
Total Western Districts .....	327,685	304,344	307,724
Total all roads .....	992,745	928,303	923,400
Commodities			
Grain and Grain Products .....	37,957	37,632	34,367
Live Stock .....	26,873	21,364	23,835
Coal .....	175,176	156,917	132,999
Coke .....	12,112	12,952	12,058
Forest Products .....	70,877	73,415	79,586
Ore .....	10,944	12,174	13,104
Misc. L.C.L. ....	269,041	262,142	262,560
Miscellaneous .....	389,765	351,707	364,891
April 2 .....	992,745	928,303	923,400
March 26 .....	1,008,888	967,945	932,769
March 19 .....	1,006,861	977,018	911,481
March 12 .....	1,005,715	967,425	926,119
March 5 .....	994,931	965,009	932,044
Cumulative total 14 weeks .....	13,357,820	12,911,288	12,705,809

The freight car surplus for the last week of March was 248,477 cars, including 68,417 coal cars and 131,844 box cars.

#### Car Loadings in Canada

Revenue car loadings at stations in Canada for the week ended April 2 showed little change from the previous week but showed the remarkable increase of 12,105 cars over the same week last year.

Commodities	Total for Canada			Cumulative totals to date	
	Apr. 2 1927	Mar. 26 1927	Apr. 3 1926	1927	1926
Grain and grain products...	7,157	7,311	4,649	107,326	89,398
Live stock .....	2,270	2,308	2,088	27,092	26,829
Coal .....	5,900	6,097	3,027	84,670	59,859
Coke .....	320	286	328	4,848	6,287
Lumber .....	3,662	3,596	3,388	40,550	42,130
Pulpwood .....	4,617	5,357	3,051	73,084	50,431
Pulp and paper .....	2,182	2,186	2,438	28,891	34,423
Other forest products .....	3,356	3,683	3,208	44,757	46,708
Ore .....	1,491	1,480	1,394	18,185	18,570
Merchandise, L.C.L. ....	17,984	17,600	14,879	210,520	193,219
Miscellaneous .....	13,367	12,901	11,753	150,969	144,784
Total cars loaded .....	62,306	62,805	50,201	790,892	712,638
Total cars received from connections .....	41,554	41,091	39,167	507,492	483,733

# What Can Be Done to Improve the Quality of Steel Rails?\*

*A study of the growth of the American railways  
and the problems introduced  
by heavy traffic*

By C. W. Gennet, Jr.

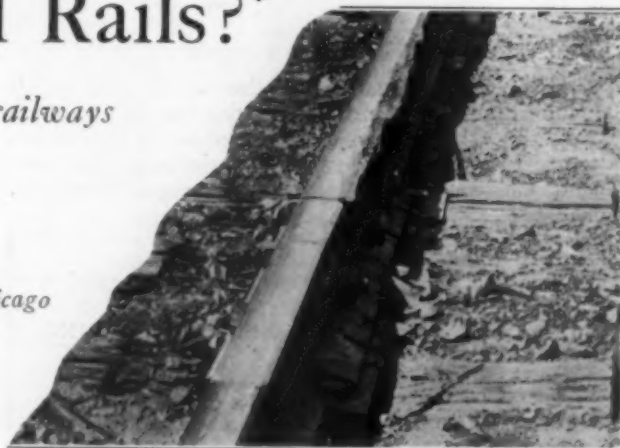
Manager Rail Department, Robert W. Hunt Company, Chicago

THE one-hundredth anniversary of the first railroad in the United States was fittingly celebrated here a few months ago. The Granite Railway, which was opened for traffic on October 7, 1826, at Quincy, Mass., consisted of  $2\frac{3}{4}$  miles of so-called track; and, quoting from a little book issued by the company in commemoration of the event, "the road-bed, deep enough to be beyond the reach of frost, was built of crushed granite, and the sleepers were made of stone, placed eight feet apart, on which rested wooden rails 12 in. high. On top of the rail was an iron plate 3 in. wide and  $\frac{1}{2}$  in. thick which was fastened with spikes." But wooden rails with strips of iron on them have passed, along with the "Stourbridge Lion," the "Tom Thumb" and the "DeWitt Clinton," and a speed of a fast walk has given way to nearly 100 miles an hour at intervals. The original  $2\frac{3}{4}$  miles of road operated has grown rapidly to something over 250,000 miles, comprising probably 400,000 miles of tracks which require approximately 2,000,000 tons of heavy steel rails each year to maintain properly. This growth of American railways has been an amazing one and an almost endless array of statistics might be presented to illustrate the rapidity of changing conditions with which engineers have been continually confronted.

## Loadings Increase Faster Than Weight of Rail

C. A. Morse, chief engineer of the Rock Island, has quite recently given figures that for accuracy probably constitute the best example of the trend of practice along the line with which we are most concerned. He states that for one western railroad the weight on drivers for all road locomotives in 1905 was 49.62 tons and the average total weight of the locomotives 66.19 tons. In 1915 these figures were 66.90 tons and 86.60 tons respectively, while in 1925 they were 85.66 tons and 106.68. Thus, in 20 years both the weight on drivers and the average total weight of the locomotives increased practically 75 per cent. Mr. Morse adds that in 1905 the weight of rail commonly used was about 85 lb. per yd. and that subsequently it was increased to 90 and 100 and in some cases to 110 lb. per yd. or more.

Emphasis should be laid on the point that while the weights for locomotives just given are averages for one road they no doubt represent fairly general conditions. Great as these increases have been, they are undoubtedly exceeded when the heaviest locomotives on some roads are considered; and notwithstanding the indisputable increase in the weight and strength of rails, the important fact remains that very often heavy locomotives are required to run over fairly light rails;



An "A" Rail (Upper) and a "B" Rail (Lower) in the Same Traffic

or putting it in another and the plainest possible form, the weight of rails in use has not kept pace with the increased weight of locomotives.

But locomotives are not the only burden that the rails sustain. Freight cars also have their story of increased weights, as great in some cases, if not greater, than the axle loads of locomotives; in addition, there is brought in the great factor of train frequency or tonnage that the rails have to carry. Thus, the rail problem becomes a complex one, made seemingly simple, perhaps, by the prescription that when heavier locomotives and cars are acquired, all the rails of a lighter weight should be taken up and correspondingly heavier ones put down. But budgets and expense items are carefully pruned and even heavier rails have not always been the panacea expected, so that after all the engineer is compelled to make the best of it, and in so doing seeks not only co-operative effort from motive power officers, but also from rail manufacturers with the hope that the former will do their share to make the loads as easy to carry as possible and that the latter will make better rails that are safer and possessed of longer life.

## Stresses on Track Are Studied

Railway engineers are fast becoming familiar with the work done by Professor Talbot in determining the stresses that occur in rails under the normal conditions of track and traffic. With his skill the stremmatograph has been made to solve various riddles in a very precise way, with the results worked up and made so understandable as to be of immeasurable benefit. As an instance of how the imagination is tried, consider for a moment a modern passenger locomotive with seven pairs of wheels, the drivers of which are 17 ft. in circumference. One revolution of a driver at a speed of 60 miles an hour requires about 0.2 second, and in that interval the stresses occurring in the rail have been computed for each position of the counterbalance throughout a complete revolution and the stresses caused by each of the other wheels also have been established.

Thus the ability of the rail to sustain the loads has been determined and some very interesting facts brought out. There is no need of bearing on this matter further than to say that in general the stresses in rails have been somewhat underestimated and considerably more is frequently required of rails than was supposed.

\* Abstracted from a paper presented before the New England Railway Club at Boston, Mass., on April 12, 1927.



Maximum stresses of as high as 60,000 lb. per sq. in. were found to occur in the base of 90-lb. rails on 10 deg. curves, and while true that such was exceptional, still other results indicate emphatically the absence of any such factor of safety as is invariably present in the computations of other steel structures. One of the most interesting things brought out by the tests has been with respect to the bending action set up in rails and induced by traffic. Obviously, the rail deflects under traffic, the so-called "wave motion," even on the best of track, being well known. In addition, however, the rail has a lateral movement, or bending between two drivers for instance, amounting from 0.1 to 0.4 in. according to the track and curvature. Thus a twisting action results from the summation of the vertical and lateral movements, which may be an important point when considering certain types of broken rails, for it has often been assumed that rails were subject only to strains of a vertical direction and so of a comparatively simple character.

#### Design of Locomotive Is Important

Important deductions have been made from Professor Talbot's published reports and last year a paper was presented before your club by Mr. Lanning, mechanical engineer of the Santa Fe System, describing some of the uses that motive power men could make of the data. It is perfectly obvious that a better effort can be made to lower the peak of the stresses in rails by giving study, first, to the design of locomotives and cars, and, second, to insure the maintenance of the good so accomplished by careful and systematic inspection. Counterbalance, equalization, lateral movement, the action of the wedges, flat spots on wheels and many other details have a decidedly important influence on rails and, as Mr. Lanning very aptly said, "Reduction of track stresses is important not only from the standpoint of safety and reduction of track maintenance, but also from the standpoint of locomotive maintenance."

It is essential that rails should possess a long life under the requirements of ordinary traffic and at the same time be safe against breakage. Most railroad officers today consider that rail breakage is paramount to rail wear, but the trend in many cases is an effort to so improve the wearing qualities that an element of risk is introduced. A chief engineer of distinction is reported to have said in effect that the rail problem consisted of making all of the rails as good as the average—a statement in which all would concur, perhaps, if it were not for the fact that frequent failures occur in what often may be regarded as rails of the best quality. A striking thing to me on the subject of rail wear is that, in my experience, all specific complaints involving wear have been confined either to rails laid on curves, where track and traffic conditions impose extraordinary burdens, or when laid on tangents, to a foot or so of the ends, where the effect of the joints indisputably is chiefly responsible, for the remainder of the same rail is not under criticism. In short, it is the unusual that generally gives rise to criticism of rail wear and, as just mentioned, the customary attempt to make the steel more resistant to curve wear, or batter, is liable to bring trouble of another kind. Rails for curved track, coupled with the actual track and traffic conditions of curves, should constitute a special problem as against the 80 or 90 per cent of straight track mileage, and deserve to be treated separately and properly, as, for instance, by being specially selected and possibly of heavier sections.

A prominent midwestern railroad noted for its excellence of roadbed and track and the accuracy of its rail records, had exactly 2,700 broken or failed rails

in the 12 months ending October 31, 1926, on a total of 4,716 miles of track. Five hundred and eighty-six, or 21 per cent, of these failures were due to transverse fissures, universally recognized as the most dangerous type of failure, while 1,773, or 65 per cent of the failures were of the head type, which, while not particularly dangerous, are nevertheless cause for constant anxiety and additional expense. This railroad, therefore, had slightly more than 7 rail failures every day while a transverse fissure showed itself every 15 hours. This is an alarming record, for who can tell when another fissure will occur under a train as did the one at Victoria, Miss., a few months ago which resulted in some 20 deaths and over 100 injuries. After all, safe rails are the crux of the rail problem, for the public demands safe traveling, and the railroads, in seeking safer rails, inquire how they can obtain them.

#### Old and New Methods of Rail Making Compared

Let us examine into modern rail making methods, drawing comparisons at the same time with the practice 30 or 40 years ago. Bessemer steel, of course, was rolled in the old days and heat after heat of 10 or 12 tons was made to almost exactly the same chemical composition. Now it is open-hearth steel from 100-ton furnaces with a considerable range in the composition of the heats so that one may be high in carbon and manganese and the next so low in those elements as to be noticeably different. The ingots cast in the old days were comparatively small, of perhaps 3,000 lb. weight. Present ingots may be 24 in. square, 80 in. high and weigh from 12,000 to 14,000 lbs. The old ingots and the present are cast in exactly the same way by pouring from a hole in the bottom of a ladle into the top of the molds. The probability is that the big ingots pipe and segregate more than the small ones did, and certainly the heating of them to a uniform temperature for rolling is made much more difficult, while the higher carbon content of the new open-hearth process steel also invites more harmful segregation and susceptibility to damage in the heating.

The old ingots were rolled to 5-in. rails in practically the same number of passes given to the large ingots now rolled to 6½-in. rails. That is, the amount of work done on the steel of the old small-section rails was generally more than that given to the present rails. Finally, the old rail was cold straightened in a gag press exactly as is the custom on the rails of 0.85 per cent carbon today. While not meaning to be unmindful of the present day art of making rails, for candidly the mills are magnificent examples of metallurgical, mechanical and electrical ingenuity, it must be admitted that the old methods had much to commend them, and that in some ways the practice of today has not kept pace with the demand for high grade rail in the modern sections.

It is manifestly impossible to think of altering many of the existing conditions. Mills and processes cannot be trifled with or built or changed in a day. The open-hearth process is here to stay with its attendant large ingots and various uncertainties. But some things can be changed by proper co-operation and it is fitting to consider a few of them.

#### "A" Rails Are Responsible for Many Failures

Fifty-four per cent of all the head failures mentioned above were in the "A," or top rails, of the ingots. The metal used in making the "A" rails has long been known to be the most unfit of any for rails. It may be chemically segregated or physically unsound, or both. "A" rails comprise about 12 per cent of all that are laid, yet in this instance, as in others, they have provided over half the failures. They are sold at the same price

as the superior rails from lower parts of the ingots. It has been proposed to roll the metal that makes them into tie plates and this suggestion has met with fair response but is greatly handicapped because of the extra price required. Nevertheless, the proposition has a strong appeal and will until the adoption by the mills of some practice insuring the making of sounder ingots.

It may be assumed that the heavier section rails, probably receiving less actual work in rolling, can stand the addition of more hardening elements in order to resist wear better, and as a consequence the carbon content has been increased practically to a point recognized as on the border of that which makes for brittleness as against ductility. There is no reason for jeopardizing the whole product to benefit a little, and as previously mentioned, wear in general is not a serious matter. It would seem more desirable to modify the customary composition of rail steel by endeavoring to improve ductility through a replacement of the carbon with some other element, and this has actually been done in the case of the medium manganese steel now being tried by a number of roads. This departure from regular practice also entails considerable extra cost, the value of which may be more doubtful than is the benefit derived from eliminating the "A" rails; but the experiment is interesting because of showing a disposition to give more study and attention to the composition of rail steel. Some of the Bessemer rails with a top limit of 0.06 or 0.07 per cent of phosphorus and with carbon around 0.55 will never be forgotten, and it might be desirable at the present time to try rails made to such a composition by the open-hearth process. In addition, several hardening, toughening and strengthening elements are recognized as fit for special purposes in automobile steels that might prove by trial to be adequately suited for rail steel, even when not specially heat treated.

It is certainly not amiss to mention the increased work that in most instances can be given to rail ingots in reducing them to rails. Some 24-in. square ingots, weighing 13,000 lb., are given 17 passes through the rolls to make an 8-in. square bloom. This takes 90 seconds, and then the bloom is reduced to a rail in 10 more passes without reheating. Some of the old school do not regard this rapid passing through rolls, or the slower movement with frequently a heavy reduction of as much as 25 per cent in one pass, as sufficient "work" on the steel. Refinement of the grain structure of steel is, to a large extent, a matter of heat treatment and control, but surely there is some mysterious thing about steel that has to do with the energy used in shaping it and whether the heavy modern rail sections are getting the energy applied in a manner to achieve the best results is worthy of further study.

#### Rails Are Often Damaged by Straightening

Straightening rails is a damaging process at the best, and as rails have become stiffer, with the content of carbon frequently at the saturation point, it is impossible to predict when some interior rupture of the grain, perhaps only microscopic in size, will result from the blow of the gag. It has apparently been left to the Germans to show the way to straighten rails in a roller bending machine that possesses many points of decided interest. Needless to say, by the German method the rail must also be strained beyond its elastic limit but their method of doing it is of more than passing economical and physical importance.

Not only were the Krupp rails shipped to the Boston & Maine last year all roller-straightened, but they were made from ingots cast from the bottom instead of the top. This practice, tried in the United States and even

used in some special cases, presumably to provide better ingots, has not been freely regarded as superior to top casting, but, be that as it may, the results show that not a single piped rail was found among the 15,000 tons tested and inspected under the most rigid conditions at the Krupp plant, and that record alone speaks favorably for bottom casting. In fact, the Boston & Maine importation last year brought to us at least two innovations so unique to American practice as to make that transaction a very important one and the service that these rails give will be watched with interest.

No single man, and probably no group of men, can write a formula that will cure the greatest transportation system in the world of its troubles with rails. In 30 years the tonnage carried by the railroads has increased nearly 5 times. Neither a better distribution of wheel loads nor heavier or special rails will probably ever eliminate broken or some otherwise defective rails. Railroad officers who generally formulate rail specifications are busy men, expected to deal with many engineering matters in a day, one of which may be the highly specialized subject of rails. The line of least resistance is sometimes the easiest to follow and the specifications are more apt to be a compromise than otherwise, with the result that the improvement aimed for is either beclouded or inadvertently lost. Manufacturers in other lines have been largely instrumental in shaping matters for the future benefit of the railroads and in assisting toward the development of new devices as, for example, with locomotives and signals. Seemingly there are possibilities of better rails in the same kind of aggressive co-operative effort between makers and users that has been productive of the three-cylinder locomotives or the new No. 60,000 or the apparently satisfactory types of automatic train control.

#### Rail Makers Must Assume More Initiative

Thus, it seems to me that the time has come when the rail makers should assume more initiative than heretofore, and instead of being passive to the point of appearing indifferent or reluctant, they should undertake, either singly or collectively, an energetic campaign aimed toward the development and improvement of that which has long been regarded too ethically as purely the buyers' business. The manifestation of such a spirit of intensive helpfulness should be welcomed unhesitatingly by the railroads and taken advantage of wholeheartedly. The expenditure of \$100,000,000 for new rails each year, together with the added responsibility toward the public that cannot be figured in money, is no small matter and is sufficient unquestionably to urge for a more constructive effort from all directions. Rail manufacturers can assist very materially in this important matter by a more generous application of their resources and talent.

The problem of steel rails, therefore, is resolved into several different items. The information about the stresses set up in rails throws new light on the subject. Manufacturing conditions, although largely fixed, require some attention of a constructive character with possible modifications aiming toward a more uniform product and the elimination of present uncertainties. Specifications require further study, and, after trials and experiments have better developed certain facts, they should be drawn more carefully and written accurately. All of these matters must have the hearty co-operation from every direction of everyone concerned. Then, as the Granite Railway so successfully served its builders 100 years ago, the railroads of today will benefit by having better wearing and safer rails to sustain the burdens of American transportation.



# Transportation Division Meets

*R. H. Aishton urges heavier car loading at Atlantic City session—Study of cross hauling of empties recommended*

THE Transportation Division of the American Railway Association held its annual meeting at the Hotel Ambassador, Atlantic City, N. J., on April 7. J. J. Bernet, president of the Erie and chairman of the division, presided. Approximately 150 railroad transportation officers were in attendance.

## Mr. Aishton's Address

The meeting was opened with an address by R. H. Aishton, president of the American Railway Association. Mr. Aishton dwelt upon the remarkable accomplishments of railroad transportation in this country, citing the fact that a week previous he had watched the sunset on the Pacific, now he was on the Atlantic, and in the intervening time, besides his travel, had had time to work one day in Chicago and two and one-half days in Washington. He said that in spite of his long association with railroads he could not get away from the romance involved in it. He cited some records which the railroads have made in their service, but predicted bigger problems than ever for the current year, with one million-a-week loadings coming nine weeks ahead of any previous year.

He spoke of some of the dangers which lay ahead of the railroads, among them the agitation for waterways, motor competition and possible competition from air transport. Other problems making problems for railroad men to solve, he said, are increasing operating costs, including wage increases and higher taxation.

These problems, he said, would have to be met by greater economy and efficiency in transportation service and it was such a body as the transportation division which would have to shoulder a large part of the burden in making this improvement.

Continuing he said:

"The whole future of railroad transportation depends on a constantly increasing betterment in service, together with a constantly increasing efficiency and economy in operation. The year 1926 set a new high mark in the history of the railroads. Not only did they carry without car shortage or transportation difficulties the greatest freight traffic in their history but they also handled this traffic with the greatest expedition ever achieved.

"There is a growing need, however, for obtaining greater service out of each freight car. The railroads have brought about the faster handling of freight by increased efficiency in the operation of terminals and the movement of trains with the result that in 1926 the average movement per car per day was 30.4 miles, the highest average for any year ever reported.

"There is a necessity, however, for the loading of freight cars more nearly to capacity. In order to accomplish this, more intensive co-operation between the railroads on one hand and the shippers as well as receivers of freight on the other is necessary. The average load per car for all commodities in 1926 was 27.4 tons. Had there been an increase of one ton in the average load per freight car, the same transportation would have been produced by 80,000 fewer cars than were actually used. Figuring the cost of a freight car at approximately \$1,800, this would have meant a saving

of about \$144,000,000 in the capital investment of the railroads. But this saving is small compared to the saving that will accrue to the shipping public from the heavier loading of freight cars, particularly when the freight traffic is heavy and the demand for transportation facilities is greatest."

## Other Speakers

The next speaker was M. J. Gormley, chairman, Car Service Division, American Railway Association. Mr. Gormley spoke very briefly of the tremendous progress which had been made by the railroads since 1920 in handling peak traffic without car shortage. "However," he added, "when we begin to think we are good it is about time to take another hitch in our belts." He spoke of the introduction of combined threshers into the grain producing areas and the consequent likelihood that the grain would descend on the railroads more suddenly than ever in the past, bringing greater problems to the railroads striving to handle this business without car shortage.

F. H. Towner, a special attorney for the American Railway Association, explained the investigation undertaken by the Interstate Commerce Commission, docket No. 17801, on the subject of car hire settlements between common carriers. The American Railway Association has issued a questionnaire on the subject to railroads subscribing to the car service and per diem agreement and the roads were urged to reply to this questionnaire thoroughly and promptly. Furthermore, it was announced, the Commission is planning to hold hearings on this subject in various places throughout the country. Mr. Towner, in common with other speakers, urged upon the railroads the importance of being adequately represented at these hearings.

## Report of the General Committee

The general committee announced the election of J. J. Bernet, president of the Erie, as chairman of the division for the term expiring April, 1929, and W. A. Worthington, vice-president of the Southern Pacific, as vice-chairman for the term expiring April, 1928.

The tellers announced the election of the following members of the general committee, terms to expire April, 1930: B. R. Pollock, vice-president and general manager, Boston & Maine; J. J. Bernet, president of the Erie; A. W. Towsley, assistant to vice-president, Chicago, Rock Island & Pacific; and D. W. Crombie, chief of transportation, Canadian National.

During the past year the committee approved the application of 10 roads for admission to the car service and per diem agreement and recommended the suspension of one road.

Checks were made of car records at 18 points during the year to determine the average time required by each road to handle cars in switching service, and reclaims allowed under per diem rule 5 were fixed in accordance therewith. In addition all industrial switching roads' subscribers to the agreement were checked during the year and reclaim figures determined.

The committee considered jointly with the general

committee of the Mechanical Division the question of economic loss in transferring bad order cars, and as a result has agreed on a tentative formula which will be applied at important gateways to develop actual costs of transferring bad order cars.

The committee reported that it had recommended to the board of directors of the American Railway Association that the Car Service Division be authorized to make a study and report on unnecessary cross hauling of empty equipment by class of cars and also the practical utilization of box cars of 100,000-lb., 80,000-lb. and 60,000-lb. capacity, respectively.

The general committee has suggested to the International Railway Association, to be held in Madrid in 1930, the consideration of the following question: "Demurrage and storage regulations on export and import freight held at ports of transshipment."

The report of the committee was adopted.

#### Report of Committee on Car Service

The committee on car service reported that the percentage of correct loading had been good and that approximately 65 per cent of home cars had been maintained on home rails throughout the year, indicating a most excellent distribution of equipment. The committee stated that the question was frequently raised as to whether it is proper to request intermediate connections to handle under car service rule 4 bad order cars which are being sent home by an indirect connection, the committee holding the opinion that interchange rule 2 requires that bad order cars shall be repaired by the hauling line.

With reference to car service rule 5, which gives a road delivering regularly to a connection at any junction any kind of traffic in its own cars of the same class to require the connection to return these cars to the point of interchange rather than at some junction less favorable to the owning road, the committee was of the opinion that "there is a direct obligation upon the line desiring to invoke the rule to cover a regularly defined movement of traffic to do it at the particular junction point where the loads are delivered and before it has a right to do so, it should be in a position to show that the empty cars previously delivered at the point where it desires to invoke the rule are being returned at some other point less favorable to it."

It was recommended that car service rule 8 be clarified to make sure that passenger cars delivered to a connection in freight service be paid for at the established per diem or mileage rate for freight cars and, if interchanged in passenger service, at the rates specified in rule 8. With reference to car service rule 11, changes were recommended in accordance with recommendations by the arbitration committee of the Mechanical Division to obviate stenciling of load limit on tank cars and live poultry cars; that no exception be made in connection with load limit markings on refrigerator cars; and that light weight stenciling on ends of tank cars be not required.

A question arose, in the absence of a local agreement, as to the extra percentage to be allowed for cost of supervision in the case of transfer of lading. The opinion was that shop expense may be added to the direct labor cost; also store expense, including freight charges, to the material; and to the grand total 10 per cent for superintendence. Likewise under this same rule the question was raised: In the case of a bad order loaded car received in interchange where a transfer of load would be unnecessary for delivery in the local interchange district, but would become necessary due to reconsignment—would the delivering road be responsible

for the cost of transfer? The committee held the opinion that unless otherwise agreed the delivering road would be responsible on reconsigned cars but not in the case of reshipment, involving the making of a new contract under a new rate.

A great deal of discussion took place on the committee's report with reference to car service rule 16, with reference to responsibility for cars containing refuse, the obligation to remove this being placed on the consignee. The committee announced that it was making a study of the subject and would submit its recommendations at a later date. It was pointed out that this rule is now recommendatory. A great deal of sentiment was manifested that the rule should be made mandatory, but after considerable discussion the committee's recommendation was adopted.

The committee reported on its campaign for heavier car loading, together with the report on loading performance which it has designed for the railroads to make each month to the Car Service Division, which the latter will transmit monthly to the shippers' advisory boards for consideration by the commodity committees.

The report of the committee was adopted.

#### Report of Committee on Records

The committee on records issued its opinion with reference to four questions which came up under the instructions on movement of tank cars of private ownership, Circular D. II-225.

The committee recommended that the following paragraph be added to per diem rule 5, paragraph (c): "However, a car handled in intermediate switching service which is delayed on the intermediate switching road over midnight of the date received on account of being held under rule 15 is not subject to immediate reclaim." Another suggested change provides for a reclaim equal to actual per diem on trap or ferry cars in switching service originating or destined to points outside the switching district, provided the movement is duly authorized by tariff and subject to a switching charge and provided that such reclaim shall not exceed three days on any one car. These recommendations were approved for submission to a letter ballot. Appropriate changes in the switching reclaim rules were also approved for letter ballot. A proposal to change per diem rule 13 to cover the presentation and handling all reclaims under per diem rule 5 and rule 2 of the code of switching reclaim rules were approved for submission to letter ballot, as was also a change to provide for handling of reclaims under per diem rule 14, to make this rule cover all reclaims under per diem rules.

Changes in per diem rule 14 were recommended and approved for submission to letter ballot to place in every instance the responsibility for per diem on the erring road where cars are detained on account of railroad error; to provide for reclaim where cars are detained on a subscriber road due to an error by a non-subscriber and vice versa; to provide for the elimination of rule 3 in the code of switching reclaim rules, and incorporate it into rule 14; defining "junction station where received" and "billed destination," and to write into the rule all interpretations now in effect.

The committee reported the assignment of reporting marks for cars in both railroad and private ownership brought up-to-date.

The report was adopted.

#### Report of Committee on Demurrage,

#### Storage, Reconsignment and Diversion

The committee reported favorably on a proposed change in demurrage rule 3, approved by the National



Industrial Traffic League, to the effect that: On cars for loading on other than public delivery tracks, the time will be computed from the first 7 a. m. after actual or constructive placement and without notice of actual placement. On cars for public delivery tracks time will be computed the same, but if not placed within 24 hours after 7 a. m. of the date for which ordered, time will be computed from the first 7 a. m. after notice of placement is sent or given to consignor.

With reference to proposed changes in demurrage rule 4, section E, agreement was reported with the National Industrial Traffic League and joint recommendations submitted to the Interstate Commerce Commission. Two interpretations by the Interstate Commerce Commission with reference to demurrage rule 9 were noticed.

The committee gave as its opinion that it is not a part of the carrier's duty under its line haul rate to spot cars so that a designated side will be accessible for unloading.

The committee reported that whereas demurrage decreased 33 per cent from 1920 to 1925, there had been no marked improvement in securing prompt release of refrigerator cars held for unloading or reconsigning. Reports received by the Car Service Division in the period from July to October, 1926, show only 67.9 per cent released within free time. The shippers' advisory boards have 145 committees working on this problem at the present time.

Attention was called to the fact that consignees frequently demand additional free time because of overcharge in assessed demurrage under demurrage rule 8, section C. The committee pointed out that demurrage charges are separate from transportation charges, which latter alone section C refers to.

Proposed changes in rules 1 to 6 applying to storage charges on explosives were approved.

The report of the committee was adopted.

#### Report of Committee on Freight Handling Service

The committee reported revised rules with reference to loading of grains and similar commodities in sacks. It recommended that each individual railroad give special attention to the matter of rough handling of cars. It advocated the more thorough cleansing of cars contaminated with oils, chemicals or obnoxious odors and submitted detailed reports on the best cleansing methods. The report of the committee was adopted and its specific methods approved as recommended practice.

## Rates and Prices on Livestock

THE livestock producer or shipper was the principal beneficiary of the increased prices of 1926, freight charges and other costs of distribution having remained practically stationary during the year, according to a study made by the Bureau of Railway Economics.

When stated in terms of the average dollar paid for livestock, freight charges showed a reduction. The distribution of each dollar paid by purchasers of livestock, which includes cattle and calves, hogs, and sheep, follows:

Item	1924	1925	1926
To freight .....	5.6 cents	4.5 cents	4.3 cents
To other distribution costs	3.0 cents	2.5 cents	2.3 cents
To the producer or shipper	91.4 cents	93.0 cents	93.4 cents
Total .....	100.0 cents	100.0 cents	100.0 cents

The study was based on the sales of livestock in 1924, 1925 and 1926 at ten of the largest livestock markets. That livestock raising is of great commercial impor-

ance to the American farmer is shown by the fact that about 21 per cent of the total gross income of the farmer comes from that source. This is only exceeded by the gross income derived from dairy and poultry products.

#### Cattle and Calves

The average net proceeds to the seller of cattle and calves increased materially during the period included in the study, advancing from \$45.21 per head in 1924 to \$50.10 in 1925 and \$54.16 in 1926, or an increase in the last year of nearly 20 per cent over 1924. During the three years the average freight charge decreased slightly from 5.8 cents per dollar in 1924 to 4.7 cents in 1926, while there also was a decrease in the costs of distribution.

"The increase in the price per 100 lb. paid by the purchaser," according to the study, "with a slight decrease in freight and other distribution costs combined, resulted in a material increase in the net proceeds to the seller, namely, from \$5.93 per 100 lb. in 1924 to \$6.54 in 1925 and to \$7.00 in 1926, an increase in 1926 over 1924 of 18 per cent.

"Of the total price paid by the purchaser, 5.8 cents per dollar were absorbed by freight charges in 1924, declining to 5.0 cents in 1925 and to 4.7 cents in 1926; 2.8 cents were absorbed by other costs of distribution in 1924, decreasing to 2.5 cents in 1925 and to 2.4 cents in 1926; while that part accruing to the seller was 91.4 cents in 1924, increasing to 92.5 cents in 1925 and to 92.9 cents in 1926."

#### Hogs

"The average net proceeds per head to the seller of hogs also increased considerably during that period, having been \$15.05 in 1924, \$22.61 in 1925 and \$26.85 in 1926, an increase in the last year of more than 78 per cent over 1924. The increase in price per 100 lb. paid by the purchaser, while freight charges remained stationary and other distribution costs practically so, resulted in a material increase in the net proceeds to the seller, namely, from \$6.75 per 100 lb. in 1924 to \$10.46 in 1925 and to \$11.61 in 1926, an increase in 1926 over 1924 of 72 per cent.

"Of the total price paid by the purchaser, 5.1 cents out of each dollar were absorbed by freight charges in 1924, declining to 3.3 cents in 1925 and to 3.0 cents in 1926; 3.2 cents were absorbed by other costs of distribution in 1924, decreasing to 2.3 cents in 1925 and to 1.9 cents in 1926; while that part accruing to the seller increased from 91.7 cents in 1924 to 94.4 cents in 1925 and to 95.1 cents in 1926."

#### Sheep

"Figured on the hundred-pound basis, the average price paid by the purchaser of sheep increased from \$12.42 per 100 lb. in 1924 to \$14.42 in 1925 and declined to \$13.96 in 1926. The increase in 1926 over 1924 was about 12 per cent. The average freight charge was 74 cents per 100 lb. in 1924, 75 cents in 1925 and 73 cents in 1926; other costs of distribution increased from 37 cents in 1924 to 38 cents in 1925 and to 41 cents in 1926, there being a slight increase over the entire period in the distribution and transportation items combined.

"Of the total price paid by the purchaser, 6.0 cents out of each dollar were absorbed by freight charges in 1924, decreasing to 5.2 cents in 1925, then increasing to 5.3 cents in 1926; 3.0 cents were absorbed by other costs of distribution in 1924, decreasing to 2.7 cents in 1925, then increasing to 2.9 cents in 1926; while that part accruing to the seller was 91.0 cents in 1924, 92.1 cents in 1925 and 91.8 cents in 1926."



## C. & E. I. Train Control Approved

WASHINGTON, D. C.

THE Interstate Commerce Commission has issued an order, by Division 1, approving with exceptions the installation of the automatic train-stop system of the Miller Train Control Corporation on the Terre Haute district of the Chicago & Eastern Illinois from Danville, Ill., to Clinton, Ind., 35.5 miles of double track. This portion of the Terre Haute district adjoins that portion of the Chicago division which is equipped with the same type of device. Thirty-three locomotives are equipped, making a total of 137 C. & E. I. locomotives equipped under both orders of the commission. These locomotives operate on or over both portions of the equipped division. In addition to these C. & E. I. locomotives, there are also 30 locomotives of the Elgin, Joliet & Eastern which operate over the train-stop territory of the C. & E. I., for a distance of about 81 miles, and these locomotives are also equipped.

The exceptions and the requirements as to inspection, maintenance, etc., are as follows:

1. The positive stop valves must be so corrected that they will perform their intended function without fail, preventing the release of the brakes after an automatic application until the train has been brought to a stop. The various failures of these valves which were observed during the inspection involved those of the perforated disc type especially and the spring which is used therein.

2. The ground reset unit must be so located or so constructed on all locomotives as to require that they be brought to a stop before a release of the brakes can be effected after an automatic application.

3. Non-equipped locomotives must not be operated in road service in train-stop territory unless double-heading behind a locomotive the train-stop equipment of which is in service.

Locomotives with the device cut out must not be run in road service from terminals in train-stop territory unless double-heading behind a locomotive the train-stop equipment of which is in service.

When necessary to operate locomotives through to terminals with the train-stop device cut out account failure enroute, special protection must be provided.

4. Locomotives equipped with the New York slide-valve brake-valve failed in some instances during the inspection to make the required brake-pipe reduction. Oral assurance has been received since this inspection that this difficulty has been corrected in all cases. Careful check should be made to insure that this has been fully covered.

### Inspection, Tests, Maintenance

1. Thorough and complete inspection and test of all parts of the train-stop equipment on locomotives operated in train-stop

equipped territory should be made upon their arrival at designated inspection and repair points. All seals should be inspected to ascertain whether broken or not and it should be noted whether the apparatus is properly cut in service. The regular departure tests should invariably be made.

2. At the time of the inspection there was much evidence that the locomotive apparatus was not being properly maintained, notwithstanding the fact that instructions for maintenance were quite complete and in effect. Informal advice has been received to the effect that since the inspection was finished, steps have been taken to correct this condition. The matter is of great importance.

3. Greater care should be exercised to keep the train-stop apparatus free from water, since a false-clear operation might be caused by ice in the piping. One case occurred during the inspection in which the hose connecting the actuating cylinder with the ramp shoe was frozen, while in another case the check valve at the shoe was frozen. The first case resulted in two false-clear failures with a passenger train.

4. Enginemen should show on their work reports as complete information as practicable covering all cases of train-stop failure in order to assist the terminal maintenance men in promptly locating defects for correction.

5. Braking distances should be carefully checked to insure that they are adequate in all cases for the speeds which trains are permitted to make.

6. Arrangements should be made which will afford maximum signal and train-stop protection to main-track traffic at cross-overs.

7. A greater degree of protection would be afforded at Cayuga crossing if the tracks of the Nickel Plate were equipped with track circuits and detector locking.

## Railway Wage Statistics for January

WASHINGTON, D. C.

CLASS I railroads reported to the Interstate Commerce Commission a total of 1,724,243 employees as of the middle of the month of January, a decrease of 49,621, or 2.8 per cent, as compared with returns for the preceding month. The total compensation was \$244,565,629, a decrease of \$8,373,862, or 3.3 per cent. Compared with the returns for the corresponding month last year, the number of employees shows an increase of 0.3 per cent, the commission's summary states, but owing principally to an increase of 1 cent in the average straight-time hourly earnings, the total compensation shows an increase of 2 per cent.

The commission includes with its statement the following table showing the range in monthly fluctuation in employment in selected groups (on the basis of hours per working day) for twenty leading railroad systems in the calendar year 1926:

Ratio of employment in months of largest and smallest employment to annual average

Name of system	Maintenance of way and structures			Maintenance of equipment and stores			Transportation (other than train, engine, and yard)			Transportation (train and engine)		
	Maximum (per cent)	Minimum (per cent)	Difference (per cent)	Maximum (per cent)	Minimum (per cent)	Difference (per cent)	Maximum (per cent)	Minimum (per cent)	Difference (per cent)	Maximum (per cent)	Minimum (per cent)	Difference (per cent)
Pennsylvania System	110.2	88.2	22.0	105.9	95.7	10.2	103.3	96.5	6.8	110.1	90.3	19.8
New York Central Lines	118.6	78.4	40.2	106.7	94.7	12.0	103.4	95.9	7.5	105.5	93.1	12.4
Southern Pacific Lines	111.0	89.1	21.9	105.6	91.1	14.5	106.6	93.1	13.5	110.2	90.4	19.8
Atlantic Coast Line System	107.5	91.0	16.5	106.2	97.4	8.8	107.5	94.6	12.9	116.1	91.7	24.4
Baltimore & Ohio System	133.1	71.9	61.2	108.8	95.6	13.2	106.8	94.6	12.2	112.4	87.3	25.1
Illinois Central System	113.3	85.1	28.2	106.9	93.4	13.5	104.9	95.2	9.7	105.0	94.0	11.0
Atchafalaya System	118.2	73.3	44.9	105.4	94.5	10.9	111.0	91.5	19.5	116.7	81.5	35.2
Southern Ry. System	108.6	92.0	16.6	106.2	92.6	13.6	104.1	96.0	8.1	108.8	91.3	17.5
Chicago & North Western System	132.3	65.0	67.3	101.4	98.7	2.7	105.4	94.0	11.4	107.8	91.7	16.1
Missouri Pacific System	111.0	92.9	18.1	101.8	95.2	6.6	103.2	96.5	6.7	106.0	90.9	15.1
Union Pacific System	124.0	76.4	47.6	104.0	90.8	13.2	107.9	90.4	17.5	122.8	87.7	35.1
Chicago, Milwaukee & St. Paul Ry. Co.	134.2	61.4	72.8	111.1	92.4	18.7	104.9	94.7	10.2	110.0	91.0	19.0
Burlington Route	123.6	60.3	63.3	106.2	96.1	10.1	104.8	95.1	9.7	114.5	89.6	24.9
New Haven System	115.0	74.8	40.2	105.4	96.7	8.7	105.5	96.4	9.1	103.8	93.9	9.9
Chesapeake & Ohio System	109.8	82.1	27.7	103.2	97.8	5.4	104.9	94.1	10.8	111.6	85.0	26.6
Rock Island Lines	116.6	84.8	31.8	104.9	93.1	11.8	103.1	96.0	7.1	105.6	91.8	13.8
Erie System	111.1	86.6	24.5	107.2	86.7	20.5	103.2	95.7	7.5	109.9	92.6	17.3
Great Northern Ry. Co.	137.5	60.3	77.2	108.4	94.0	14.4	106.9	92.8	14.1	132.8	83.4	49.4
Norfolk and Western Ry. Co.	119.9	78.4	41.5	101.9	98.3	3.6	104.5	95.7	8.8	113.9	85.3	28.6
Northern Pacific Ry. Co.	129.3	72.1	57.2	101.7	98.4	3.3	106.6	94.1	12.5	115.0	91.1	23.9



*This Electro Motive Design of Rail Motor Car Makes 183 Miles Every Day in Service*

## Rail Motor Car Service on B. & M.

*Twenty cars daily protect 130 train schedules and run 3,000 miles—Each car receives four hours service attention daily*

THE Boston & Maine owns 24 rail motor cars, the operation of which covers approximately 60 per cent of the total route mileage of the system. They run on routes in Massachusetts, from Boston to Springfield, Fitchburg, Lawrence and Marlboro and to Portsmouth, N. H.; also between Salem and Lowell. They operate over two routes between Worcester, Mass., and Concord, N. H., while in New Hampshire several branch lines are served from Concord, Manchester, Plymouth, Rochester and Milford. There is also local motor car service on main lines out of Springfield, Mass., between North Adams, Mass., and Troy, N. Y., and between Concord, N. H., and White River Junction, Vermont.

### The Equipment

Pertinent information concerning these cars is listed in the table. Three of the cars are equipped with 175-hp. motors, six with 190-hp. motors, one with a 225-hp. motor, three with 250-hp. motors and ten with 275-hp. motors. Only one car is equipped with a 75-hp. motor; this does not pull a trailer while all the others do on most of the runs. Electric drive is provided for 16 of the cars and mechanical drive for the remaining eight cars. Eight of the cars are heated with forced hot air and the remaining 16 with hot water. All of the cars, except one, are provided with baggage compartments. One car has a baggage capacity for 1,000 lb., seven cars for 2,000 lb., and the remainder for 3,000 lb.

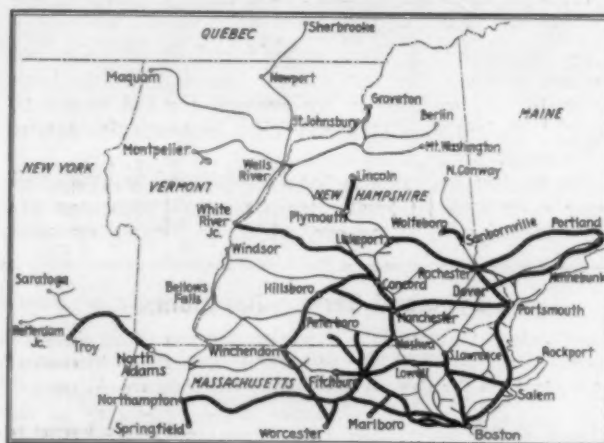
The trailer capacity is dependent on the capacity of the power unit. Six of the cars require a special trailer or a light weight coach and will handle a trailer load of from 18 to 20 tons. All of the other cars will handle a trailer load of 35 tons or less.

### Operation

A little over a year ago the B. & M. decided to use rail motor cars to replace steam operation on some branch lines and to improve local train service by operating additional trains. A few cars of one type were first purchased. After these had been in service for a short time and had proved their value, it was decided to enlarge the scope of the operation. With this in mind, several

cars were purchased of each of the different types manufactured. Only gasoline is used as a fuel.

When the cars were first put into service, difficulty was experienced in getting the enginemen to bid in the jobs of operating them. However, after the first cars were provided with crews, the advantages of operating rail motor cars over that of operating a locomotive began to be apparent to them and they jealously guard their rights



**The Heavy Lines Indicate the Portion of the B. & M. System Over which Rail Motor Cars Operate**

to these runs. At the present time as soon as a motor car run is open the job is quickly bid in.

When the cars were put into service, the reaction of the traveling public toward them was carefully studied. At first the public considered the cars as a novelty. They were well patronized at the outset. Many letters were received commenting on the cleanliness of these cars as compared with that of trains hauled by locomotives. Very few complaints were received. The main criticism referred to the odor of gas in the cars while they were at a stand-still. This was caused by running the engine until the train came to a full stop, thus permitting the exhaust gases to drift into the cars. It was overcome by



shutting the engine off about 300 ft. from the station and drifting in. This allows the gases to exhaust out through the roof and clears the exhaust line so that there are no gases left to filter into the cars when the train is at a stop.

The cars can maintain as fast a schedule as a locomotive. Some of them have run as fast as 67 m.p.h., but they are all restricted to 55 m.p.h. owing to the mechanical stresses set up when going at a higher speed. Some of the cars operate over territories which have grades ranging from .35 to .40 per cent.

The average length of run per day per car for the 20 cars in service is 150 miles and the greatest mileage per day made by a car is 244 miles. Consideration is being given to running a rail motor car from Boston, Mass., to Troy, N. Y., and return, a main line run of 384 miles per day. During the winter each car is fitted with a snow plow and snow has had little effect in retarding the schedules of these units. These cars have operated through snow from 8 in. to 10 in. deep above the rails and have plowed through snow drifts 2½ ft. high for a distance of 200 ft. or more. The rail motor cars have completed their schedules when steam locomotives have required assistance to bring in their trains; this is because of the small wheels and better traction.

In some of the motor cars equipped with hot water heating systems, the car heater is arranged to heat the engine cooling water system to prevent freezing in cold weather. To prevent the water from freezing in the other cars, glycerine was tried, but it was found that it leaked past the rubber water-seal cylinder sleeve rings and its use was discontinued. Alcohol is effective but unreliable, as the alcohol and water mixture has a tendency to boil so readily that it is difficult to know just how much alcohol is in the water system. For that reason water alone is used. To be on the safe side in the winter, the water is removed at the end of the day's run and replaced in the morning.

No difficulty has been experienced during the hot weather to keep the water cool. In fact it has been found difficult to keep it hot enough for the motor to operate efficiently. This condition is particularly true where many stops are made.

The Boston & Maine is the first railroad to equip rail motor cars with automatic train control; two cars are now so equipped. One car, 61 ft. in length, operates

between Boston and Fitchburg, Mass., a distance of 50 miles and the other car, 73 ft. in length, operates between Boston and Marlboro, Mass., a distance of 32 miles. No difficulty has been experienced in operating automatic signals with rail motor cars.

#### Failures and Maintenance

Since the cars have been in service there have been few failures chargeable to defective equipment or weakness in design. Most of the failures have been man failures, such as allowing the water to get low in the batteries, failure to replace blown fuses, etc. These were primarily due to the fact that the men operating and maintaining the cars were not thoroughly familiar with their construction and operating requirements.

When working out the organization for maintenance, these units had to be considered both as cars and as locomotives. The locomotive department is held responsible for the maintenance of all the power equipment, including the power trucks, and the car department is held responsible for repairs to the car body, trailer trucks, and the heating system.

The mechanical superintendent has two assistants, the superintendent of locomotive maintenance and the superintendent of car maintenance, who are held responsible for the co-operation of their respective departments for the proper maintenance of these units. The superintendent of locomotive maintenance has under his jurisdiction a supervisor of rail motor car maintenance with one assistant, whose duties are to supervise repairs and maintain inspection.

Mechanics trained to handle inspection and repairs are located at each terminal where the cars lay over. Each car receives the attention of at least one mechanic at each lay-over period. If two cars lay over at a terminal, one man can handle both, as an average of only four hours per car per day is required for their maintenance. In case of emergency, the supervisor and his assistant are available for inspecting, locating troubles and assisting at outlying points where a one-man terminal needs additional help.

So far, only light repairs have been made to the cars since they have been in service but a little more than a year. In anticipation of the heavy repairs to be made in the future, however, plans have been made to establish a motor car repair department at the Billerica shops. A

Type and Service Assignments of Boston & Maine Rail Motor Cars—April 7, 1927

Car No.	Builder	Design	Type of Engine	Type of Drive	Assigned Routes	Trips Per Day	Miles Per Day Except Sunday
150	St. Louis Car Co.	Electro Motive	Winton, 175 hp.	Electric	Spare Service	2	120
151	St. Louis Car Co.	Electro Motive	Winton, 175 hp.	Electric	Winchendon and Concord, N. H.	2	120
152	St. Louis Car Co.	Electro Motive	Winton, 175 hp.	Electric	Lincoln and Plymouth, N. H.	6	129
190	J. G. Brill Co.	Brill 250	Brill Westinghouse	Electric	Springfield and Northampton, Mass.	12	205
					Springfield and Northampton, Mass.	4	68*
185	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Manchester, N. H., and Portland, Me., via Portsmouth and Dover	2	200
182	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Boston and Fitchburg, Mass.	4	121
181	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Lancaster and Dover, N. H.	4	185
†184	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Hillsboro, N. H., and Worcester, Mass.	3	192
187	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Concord, N. H., and Worcester, Mass.	2	161
**186	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Worcester, Mass., and Elmwood, N. H.	3	163
†183	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Boston, Marlboro and Lancaster, Mass.	3	183
195	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Boston, Lawrence, Mass., and Portsmouth, Me.	6	217
196	Osgood Bradley Car Co.	Electro Motive	Winton, 275 hp.	Electric	Boston, Lawrence, Mass., and Portsmouth, Me.	6	217
***120	St. Louis Car Co.	Sykes	Sterling, 225 hp.	Mechanical	.....	.....	.....
101	J. G. Brill Co.	Brill 55	Midwest, 75 hp.	Mechanical	Milford, N. H., Ayer, Mass., and Greenville, N. H.	2	97
121	J. G. Brill Co.	Brill 75	Winton, 190 hp.	Mechanical	Salem, Lowell and Lawrence, Mass.	6	98
122	J. G. Brill Co.	Brill 75	Winton, 190 hp.	Mechanical	North Adams, Mass., and Troy, N. Y.	2	96
123	J. G. Brill Co.	Brill 75	Winton, 190 hp.	Mechanical	Lowell, Lowell Jct. and Ayer, Mass.	8	84
					Lowell and Lowell, Jct., Mass.	8	68*
124	J. G. Brill Co.	Brill 75	Winton, 190 hp.	Mechanical	Concord and White River Jct., Mass.	2	140
125	J. G. Brill Co.	Brill 75	Winton, 190 hp.	Mechanical	Wolboro and Sanbornville, N. H.	8	96
126	J. G. Brill Co.	Brill 75	Winton, 190 hp.	Mechanical	Rochester, N. H., and Portland, Me.	2	106
170	J. G. Brill Co.	Brill 250	Brill Westinghouse	Electric	Hillsboro and Manchester, N. H.	2	108
††171	J. G. Brill Co.	Brill 250	Brill Westinghouse	Electric	.....	.....	.....
					.....	.....	.....
180	Osgood Bradley Co.	Electro Motive	Winton, 275 hp.	Electric	Boston and Springfield, Mass.	2	244

\* Sunday trains.  
† Alternate runs, daily.

\*\* Not assigned; out of service since Nov. 19, account collision.

†† Not assigned; out of service since Nov. 11, account accidentally burned interior passenger compartment.

\*\*\* Not assigned; awaiting transmission development.



locomotive inspection shed 209 ft. long by 60 ft. wide is located at this point. It has two tracks, one of which is a pit track; the other is to be elevated so that a mechanic can work under a gasoline engine without danger of suffocation. The shop will be equipped with a full complement of machine tools and handling equipment necessary for the maintenance of this type of a car. At the outset the working force will consist of a foreman, six mechanics and four helpers.

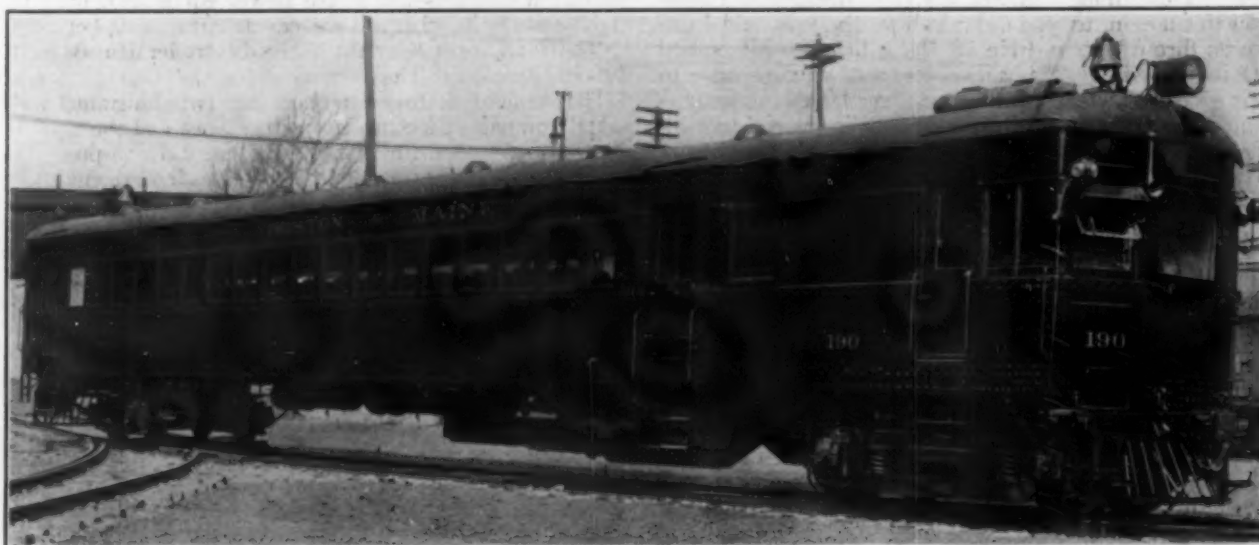
#### The Problem of Spare Parts

As the cars were put into service a stock of spare parts, as recommended by the builders, was purchased. Errors were made in overstocking certain parts and certain items of the stock have not moved fast enough. However, in general, the suggestions received from the manufacturers relative both to spare parts and to maintenance have been very helpful. As the B. & M. places

line. This is an average of 1.3 train-miles per gallon of fuel which was maintained during the preceding 12 weeks.

### Claim Payments Decrease

**T**HE claim payments for 1926, as reported by Class I carriers of the United States and Canada to the Freight Claim Division of the American Railway Association, totalled \$38,187,315, as compared with \$38,772,097 in 1925, a decrease of \$584,782 or 1.5 per cent. For the United States alone, the amounts were \$35,785,779 in 1926 and \$36,760,941 in 1925. The number of claims presented to United States and Canadian carriers in 1926 totalled 2,491,856 as compared with 2,380,823 in 1925, or an increase of 4.7 per cent. The



A Special B. & M. Design of Brill Rail Motor Car which Has No Baggage Compartment

the revenue earning value of the cars at from \$50 to \$100 a day, it takes the attitude that it is better to be on the safe side with its stock of spare parts rather than to lose service time while awaiting an order and shipment from the factory.

When attempting to analyze the operating expense figures for these cars, consideration must be given to such factors as the comparative expense of operating steam trains in the same service, the character of the road and the number of miles made by each car, since they effect the service of each car and hence the significance of general averages is very limited. A general indication of the cost of the motor car service, however, may be gained from the fact that the expense for the operation and maintenance of 13 cars for the ten months ending December 31, 1926, averaged 49 cents per train mile. This figure includes only the direct charges for operation and repairs and does not include the carrying charges. It is comparable with the cost per train-mile in steam service as the indirect charges are not included in the final figure.

The carrying charges, which includes depreciation, insurance and interest, ranges, approximately from 11 cents to 19 cents per train mile, depending on the value of the car and the number of miles it makes during the month. During the week of March 24, nineteen motor cars were in service, making 14,571 train-miles and with their trailers, 25,375 car-miles. They used 11,201 gal. of gaso-

number of claims presented per million revenue ton miles was 5.6 in 1926 as compared with 5.7 in 1925. The ratio to gross freight earnings was 0.74 per cent in 1926 compared with 0.81 per cent in 1925. The amount paid per car originated in the United States in 1926 was 67 cents, 53,309,644 cars having been handled, while in 1925 it was 72 cents, a total of 51,224,152 cars having been handled. The average claim paid by carriers of the United States and Canada in 1926 is estimated at \$15.32, while in 1925 it was \$16.39.

Of the causes resulting in payments, rough handling, unlocated damage, delay, defective equipment, wrecks, loss of entire package, concealed damage and other unlocated loss, each exceeded \$1,000,000. Of these, the amount charged to rough handling was \$9,624,342, an increase of 5.7 per cent over last year and unlocated loss totalled \$7,538,047, an increase of 7.5 per cent over last year. Claims due to delay totalled \$3,380,936, or a decrease of 22.5 per cent, while those due to defective equipment totalled \$3,047,299, a decrease of 14.6 per cent. Among other causes which showed a marked decrease were other unlocated loss 12.3 per cent, robbery of entire package 11.9 per cent, improper refrigeration and ventilation 19.9 per cent, and other robbery 12 per cent. Fire claims showed an increase of 34.7 per cent.

Of the commodities, fresh fruit and vegetable payments totalled \$8,293,529 or 21.7 per cent of the total claim payments. Unlocated damage was responsible for

\$1,283,649 of these payments, rough handling of cars \$2,320,131, and delay \$2,416,283. Livestock contributed \$2,368,538 or 6.2 per cent of the total payments. Unlocated damage on this commodity totalled \$839,712, rough handling of cars \$534,395 and delay \$471,672. Claims on new furniture totalled \$1,992,578 or 5.2 per cent of the total, of which unlocated damage amounted to \$664,376, rough handling \$556,290 and concealed damage \$561,765.

## Miller Train Control On the Monon

THE Interstate Commerce Commission on April 11 made public an order entered by Division 1 authorizing the Chicago, Indianapolis & Louisville to change the type of train-stop device installed under its first order, of June 13, 1922, between Hammond and Monon, Ind. This action was taken in response to a petition filed by the railroad on March 9 asking authority to stop operating and to take out the intermittent inductive train-stop device of the Sprague Safety Control & Signal Corporation, which had been installed on that division under the first order of the commission and had been approved by the commission, and to substitute in lieu thereof the intermittent induction type of the Miller Train Control Corporation. It also asked for additional time within which to equip its line with the Miller device from Hammond to Indianapolis in compliance with the requirements of the first and second orders, but the commission has denied the petition as to any extension beyond July 1 under its order of January 14, 1924.

The installation is to be made under a contract between the railroad and the General Railway Signal Company, which, as previously announced, has a co-license agreement to manufacture and sell the Miller device, and this is to be the first installation of the Miller device made by the G. R. S. Company under that agreement. Work is now in progress on the 163 miles of line involved in the two orders and provision is also made in the contract for an extension beyond the two divisions. The system selected by the Monon embraces the same principles employed in the installation on the Toledo-Detroit division of the New York Central.

As a result of its investigations and negotiations, the petition says, the road has decided that for various reasons it would be better to adopt the Miller device, and has made an arrangement with the manufacturer whereby it can install that system between Hammond and Indianapolis and equip all its locomotives operating over those divisions, "for little more than it would cost to go ahead and instal any other reputable system of train control between Monon and Indianapolis." The petition says that in its opinion the Miller device "is better suited to applicant's requirements than any other train-stop device with which it is familiar, and applicant is also of the opinion that the expense of maintaining said Miller device will be less than the expense of maintaining the system which it now has installed between Hammond and Monon.

"Applicant says that the Sprague system is functioning satisfactorily, but for various reasons applicant deems it wise to adopt and instal said Miller device in lieu of any other system which it has investigated." Unless some unforeseen or unavoidable delays occur, the petition says, it can take out the present system between Hammond and Monon and completely instal the Miller system between Hammond and Indianapolis by November 1.

## Capitalization and Income

WASHINGTON, D. C.

THE Interstate Commerce Commission, Bureau of Statistics, has issued a preliminary statement of the capitalization and income of Class I railways for the year 1926, the third issue of a compilation of special reports containing selected items for the roads as a whole, by districts, and individually, for the purpose of furnishing figures frequently called for and not appearing in the monthly reports, which otherwise would not be available before the preparation of the Preliminary Abstract of Statistics of Common Carriers. The totals differ somewhat from the corresponding figures in the December issue of the summary of revenues and expenses because the present statement does not include data for the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific for the period prior to June 2, 1926, when the properties of those two roads were leased to the Yazoo & Mississippi Valley.

The total capitalization of the Class I railroads was \$18,732,355,349. The summary for the Class I roads of the United States, not including switching and terminal companies, follows:

Item	
1. Miles of road owned (single track).....	184,216.50
2. Average miles of road operated*.....	236,096.32
3. Common stock.....	\$5,965,010,476
4. Preferred stock.....	1,752,140,025
5. Total capital stock.....	7,717,150,501
6. Funded debt unmatured.....	10,614,631,794
7. Other long-term debt.....	400,573,054
8. Total long-term debt.....	11,015,204,848
9. Grand total capitalization.....	18,732,355,349
10. Railway operating revenues.....	6,379,480,934
11. Total maintenance expenses.....	2,148,521,372
12. Railway operating expenses.....	4,666,257,134
13. Railway tax accruals.....	388,682,377
14. Railway operating income.....	1,322,692,955
15. Equipment and joint facility rents.....	d109,607,241
16. Net railway operating income.....	1,213,085,714
17. Other income.....	287,279,507
18. Total income.....	1,500,365,221
19. Rent for leased roads.....	161,797,211
20. Interest on funded debt.....	494,557,655
21. Interest on unfunded debt.....	12,397,555
22. Total interest accrued.....	506,955,210
23. Other deductions.....	26,799,200
24. Total deductions.....	695,551,621
25. Net income.....	804,813,600
26. Dividend appropriations of income and surplus:	
(a) Common.....	330,290,005
(b) Preferred.....	62,501,954
27. Total appropriations of income.....	245,724,053
28. Income balance transferred to profit and loss.....	559,089,547
Ratio of Items	
Per Cent of Grand Total Capitalization: (Item 9)	
3. Common stock (3 to 9).....	31.8
4. Preferred stock (4 to 9).....	9.4
5. Total capital stock (5 to 9).....	41.2
6. Funded debt unmatured (6 to 9).....	56.7
7. Other long-term debt (7 to 9).....	2.1
8. Total long-term debt (8 to 9).....	58.8
Per Cent of Railway Operating Revenues: (Item 10)	
11. Total maintenance expenses (11 to 10).....	33.7
12. Railway operating expenses (12 to 10).....	73.1
13. Railway tax accruals (13 to 10).....	6.1
14. Railway operating income (14 to 10).....	20.7
15. Equipment and joint facility rents (15 to 10).....	19.0
16. Net railway operating income (16 to 10).....	19.0
Per Cent of Total Income: (Item 18)	
17. Other income (17 to 18).....	19.1
19. Rent for leased roads (19 to 18).....	10.8
20. Interest on funded debt (20 to 18).....	33.0
21. Interest on unfunded debt (21 to 18).....	0.8
22. Total interest accrued (22 to 18).....	33.8
23. Other deductions (23 to 18).....	1.8
24. Total deductions (24 to 18).....	46.4
25. Net income (25 to 18).....	53.6
Per Cent of Net Income: (Item 25)	
27. Total appropriations of income (27 to 25).....	30.5
28. Income balance transferred to profit and loss (28 to 25).....	69.5

\* Including trackage rights.  
d Deficit or other reverse item.

MECHANICAL ENGINEERING GRADUATES.—A booklet giving a brief description and a picture of each of the individuals composing its senior class in mechanical engineering, has been published by the Pennsylvania State College, State College, Pa., in an endeavor to facilitate matters for the interviewer going to State College with a view to employing a college trained man. The booklet contains also a list of the juniors who are interested in securing summer employment with firms willing to take on men temporarily prior to graduation.



# Pennsylvania Reports Best Year

*Net income in 1926 equals 13.53 per cent on stock or double dividend requirements—Further improvement likely*

**S**TOCKHOLDERS of the Pennsylvania Railroad, now numbering over 141,000, had every reason to be well pleased with the annual report of the company which was made public on April 4. The report showed that in 1926 the company earned the largest net income after interest and other charges and likewise the largest earnings per share in its history, and thereby added another to the successively improving years since the termination of federal control. The 1926 net income totaled \$67,567,959, or \$5,347,634 more than in 1925. This net was equivalent to 13.53 per cent on the outstanding capital stock. The per cent earned on the stock in 1925 was 12.46. The best previous year from the standpoint of the actual amount of net income was 1925. To find the best previous year from the standpoint of earnings per share it is necessary to go back to 1902 when the per cent earned on stock was 13.44; this result was secured with net income of 27½ million on the then much smaller amount of stock outstanding.

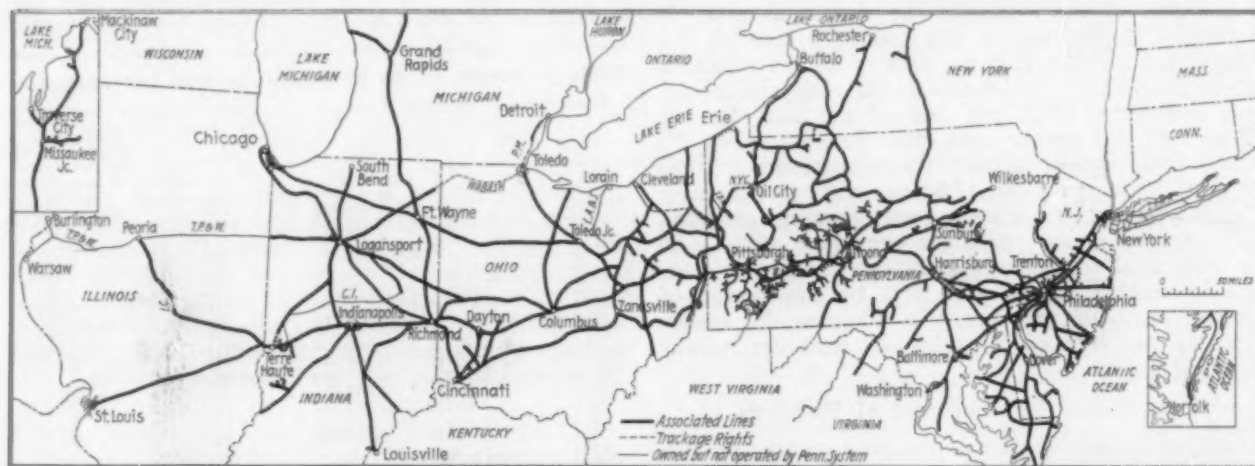
The Pennsylvania placed its stock on a 7 per cent annual dividend basis effective with the quarterly dividend paid November 30, 1926. The 1926 net income was nearly double the increased dividend requirements. The actual dividends appropriated in 1926 totaled 6½ per cent, or \$32,451,339. After allowance for sinking and other reserve funds and certain less

price of 61⅞ give a yield to the buyer of stock at that price of 5.73 per cent. The earnings of 13.53 per share would amount to 11.08 per cent of the April 14 closing price.

The reason for the Pennsylvania's good record in 1926 was increased traffic combined with greater economy in handling it. Thus, as compared with 1925, the number of loaded cars moved showed an increase of 3.2 per cent and the ton-miles an increase of 9. The revenue ton-miles were one per cent greater than in the busiest previous year, which was 1923. The company also reported an increase in its passenger revenues, explaining that this "was the result of an improvement in other than short distance traffic, the latter continuing to show a decrease because of the constantly increasing use of private automobiles and motor buses."

## Comparisons of Revenues and Expenses

The railway operating revenues totaled \$709,817,450, showing an increase over 1925 of \$37,680,488, or 5.6 per cent. The total operating expenses were \$550,360,578. This represented an increase over 1925 of \$23,221,231 or 4.4 per cent. The increase in expenses was only 62 per cent of the increase in revenues. The picture, however, was slightly marred by the increase in taxes. The 1926 payments for taxes totaled \$37,110,193, or 5 million more than was paid in dividends. The



The Pennsylvania System

important items, the company carried to profit and loss a balance of \$30,270,966.

## Stock at Highest Since 1912

The price of Pennsylvania stock, \$50 par value, closed on Wednesday, April 14, at 61⅞. The day after the annual report was made public it reached a high of 62¾, the highest price quoted on Pennsylvania stock since 1912. The degree of improvement that has taken place in the fortunes of this carrier in the past four or five years can be shown in no better way than by pointing out that at one time in 1921 the stock went down to 32¼. The 7 per cent dividends on the Pennsylvania stock at a

taxes were at the same time 5 million, or 17 per cent, more than was paid on this score in 1925. The 1926 net railway operating income of \$106,432,757, compared with \$100,108,008 in 1925, the improvement in this important item being \$6,324,750, or 6.3 per cent.

The road reported an increase in its maintenance of way expenses of \$7,358,781, or 8.5 per cent over 1925 which is particularly of interest because these expenses in 1925 were 11 million greater than in 1924. This is evidence of the great amount of effort the company is making to bring the road back to the standard which it was recognized as having prior to federal control.

The 1926 maintenance of equipment expenses were



about the same as in 1925, an increase of 3.2 million in the charges for freight car repairs having been more than balanced by a decrease of 3.6 million in the charges for locomotive repairs.

#### Transportation Expenses Increase

The transportation expenses showed an increase over 1925 of \$14,588,733, or 6 per cent, this percentage being slightly in excess of the percentage increase in total operating revenues. The 1926 ratio of transportation expenses to total operating revenues was 36.8, whereas in 1925 the transportation ratio was 36.7. The increase in the transportation expenses is explained in the annual report as having been due to "higher prices and greater consumption of fuel, and larger outlays for wages, due to increased business." This explanation is only partially sufficient because with the increased business, one would have expected the transportation ratio to be less. The increase in the debit per diem balance of \$2,197,310, or 17 per cent, would appear to be out of line with the per cent of increase of traffic.

The Pennsylvania's operating ratio of 77.52 in 1926 was the lowest reported since 1917. The remarkable improvement in Pennsylvania operations since the termination of federal control is indicated by the progressive improvement in the ratio since 1920.

Year	Operating Ratio	Year	Operating Ratio
1921	87.56	1924	80.16
1922	82.35	1925	78.32
1923	81.77	1926	77.52

#### Country's Largest System

The most interesting feature of the Pennsylvania is always the fact that the road is so large that it serves in many respects as an unusually good index of the country's railroads as a whole. The figures given above are those for the Pennsylvania Railroad which includes 95 per cent of the system. The system as a whole operates 4.90 per cent of this country's railroad line mileage and includes 7.05 per cent of all the country's railway trackage. Its investment in road and equipment constitutes 10.38 per cent of the total for the railroads of this country and other percentages on the basis of 1925 figures follow: Revenue ton-miles, 10.92 per cent; passenger-miles, 17.91 per cent; total number of employees, 12.09 per cent; total operating revenues, 11.76 per cent; total passenger equipment cars, 14.86 per cent; total freight equipment cars, 11.32 per cent; total locomotives, 11.33 and total tractive power of locomotives, 12.93 per cent. In addition, the system earns 9.7 per cent of the railroads' total net railway operating income.

#### Progressive Improvement of Earnings

Another interesting fact is the phenomenal improvement made by the Pennsylvania during the past few years. The system came out of federal control with its earning power almost eliminated. In 1920 it had a net operating deficit of 63 million. In 1921 the deficit became a net of 41 million and it was in this year that the company was compelled to decrease its dividend rate to 4 per cent after having maintained a rate of 6 per cent (7 per cent in 1907) from 1900. In 1922 the net operating income doubled as compared to that of 1921 and became 80 million so that the 6 per cent dividend rate could be restored. In 1923 the figure became 88 million, decreased to 84 million in 1924, then rose to 108 million in 1925 and reached 113 million in 1926.

This brings us to a consideration of the greatest asset that the Pennsylvania stockholders have in the ownership of stock in their company. It has been often said

of the Pennsylvania management that it has invested one dollar in the property for every dollar that it has paid out in dividends. This ratio still seems to be maintained. Thus while in 1925 the net increase in investment in road and equipment totaled 24 million dollars, or about 6 million less than the dividend disbursements; in 1926, on the other hand, the increase in the investment was 45 million or 13 million more than the dividends. This explains in part the 398 million dollar surplus which amounts to no less than \$40 a share on the outstanding \$50 par value capital stock.

#### Large Equities

This may be put in another way by reproducing the following figures with respect to the tentative valuations served by the Interstate Commerce Commission last December.

The assets of the 80 companies of the Pennsylvania System were found to be as follows, the valuation dates of the various companies being from 1915 to 1918, but all based on 1914 prices:

The total physical property and other assets found by the commission for the entire 80 companies comprising the Pennsylvania Railroad System aggregated.....	\$2,488,135,491
The total par value of all securities outstanding on the dates mentioned was .....	1,793,240,093
Of this latter total a par value of.....	471,275,607
were owned by companies comprising the Pennsylvania Railroad System, leaving capital issues in the hands of the public of .....	1,321,964,486
against total physical property and other assets of.....	2,488,135,491

The annual report states "the respective dates of valuation of the companies in the system were as of June 30th in the various years between 1915 and 1918, but the commission uniformly used prices in the inventories which it considered represented conditions as of June 30, 1914, and valued lands as of the respective dates of valuation. *The findings of the commission do not, of course, reflect what the properties are worth at this time, because at least \$500,000,000 have been expended for additions thereto and improvements thereof*

Table I—Return on the investment in road and equipment

PENNSYLVANIA RAILROAD COMPANY AND LINES DIRECTLY OPERATED			
Year ended Dec. 31	Investment in road and equipment	Net railway operating income	Per cent of investment in road and equipment
1910	\$1,432,621,193	\$73,094,112	5.10
1911	1,464,339,100	70,114,256	4.79
1912	1,497,922,992	76,742,480	5.12
1913	1,567,750,758	64,469,233	4.11
1914	1,593,380,454	57,990,595	3.64
1915	1,620,990,604	79,532,705	4.91
1916	1,678,654,692	97,025,399	5.78
1917	1,748,098,169	72,869,101	4.17
1918	1,824,962,707	*23,411,569	*1.28
1919	1,937,609,317	*7,862,716	*0.41
1920	1,955,917,435	Def. 60,148,959	...
1921	1,965,817,010	37,037,344	1.88
1922	1,975,081,422	73,411,398	3.72
1923	2,052,362,136	83,545,404	4.07
1924	2,108,385,309	78,799,913	3.74
1925	2,147,439,758	100,108,008	4.66
1926	2,217,005,932	106,432,757	4.80

\* Based on result of Federal operations and taxes and expenses of the corporations.  
Investment in Road and Equipment above stated does not include material and supplies or other working capital.

since the valuations were made." The significance of this is that the amount of additions and betterments, noted as 500 million, would compare with capital stock outstanding of 499 million on December 31, 1926, or with the total funded debt, inclusive of equipment trusts of about 605 million. It is indeed interesting to imagine in what a remarkably strong position the Pennsylvania shareholders will find themselves in if the railroads' contentions with reference to valuations on the basis of reproduction costs offered in the St. Louis & O'Fallon recapture case are sustained by the United States Supreme Court.

In 1926, the net railway operating income of the Pennsylvania System amounted to 4.76 per cent of the investment in road and equipment exclusive of materials and supplies and cash. This figure compared with an average for the years 1910 to 1917 of 4.63, but it has been exceeded in four individual years, namely in 1910 with 5.02 per cent; 1912, 5.04 per cent; 1915, 4.82 per cent and 1916, 5.68 per cent. It will be noted, however, that in no year has the rate of return ever reached 5½ per cent. The parent company, which as above noted, operates 95 per cent of the system's mileage has done slightly better as will be observed from Table I.

The really significant factor is that in 1926 with a return on the investment of only 4.80 per cent, the company was able to report earnings of 13.53 per cent on its stock—and Senator La Follette had the valuation act passed to prove that the railroads were overcapitalized!

#### Has Not Yet Regained Pre-War Position

There is a belief in some quarters that the Pennsylvania has regained its pre-war earnings position and

war standards that may be avoided after that desirable position is attained.

With reference to the transportation expenses the record is less clear but it is peculiar for transportation expenses to increase in greater ratio than an increase in traffic. The comparison of operating statistics for 1926 and 1920 for the Pennsylvania and for the Eastern District, given in Table II may be interesting in this connection. It will be noted that the Pennsylvania moves about one-fourth the traffic in the district, which gives undue weight to its figures, but that in nearly every instance its improvement was not quite as great as that for the district as a whole. The vital fact is, as pointed out in the annual report, that a reduction of 1 per cent in the operating ratio is equal to a saving of approximately \$7,000,000.

#### Further Improvement Likely

Another comparison that leads to similar conclusions devolves from ascertaining the relationship between a road's net operating income and its total operating

Table II—Comparison of Selected Freight Operating Statistics

Unit	PENNSYLVANIA SYSTEM				EASTERN DISTRICT			
	1926	1920	Per Cent of Change		1926	1920	Per Cent of Change	
			Inc.	Dec.			Inc.	Dec.
Mileage operated	10,882	.....	..	..	58,784	.....	..	..
Gross ton-miles (thousands)	112,868,405	97,597,309	15.7	..	451,208,185	392,166,848	15.0	..
Net ton-miles (thousands)	53,473,225	51,985,190	2.9	..	207,397,009	200,798,571	3.3	..
Freight train-miles (thousands)	59,616	59,244	0.7	..	244,118	242,024	0.9	..
Freight locomotive-miles (thousands)	70,190	70,953	1.1	..	289,518	291,537	..	0.6
Freight car-miles (thousands)	2,678,934	2,248,006	19.1	..	11,298,458	9,348,071	20.8	..
Freight train-hours	5,648,114	6,597,878	..	14.3	21,872,621	25,837,795	..	15.4
Tons of coal consumed by freight locos	8,779,254	9,307,056	..	5.6	35,637,307	38,206,129	..	6.6
Car-miles per day	24.5	20.2	21.3	..	26.5	21.3	24.5	..
Net tons per loaded car	31.3	34.9	..	10.3	28.8	31.7	..	9.1
Per cent loaded to total car miles	63.7	66.3	..	2.6	63.8	67.7	..	3.9
Net ton-miles per car day	489	467	4.7	..	486	457	6.4	..
Freight cars per train	45.9	38.9	18.0	..	47.3	39.6	19.5	..
Gross tons per train	1,893	1,647	14.9	..	1,848	1,620	14.1	..
Net tons per train	897	877	2.3	..	850	830	2.5	..
Train speed, miles per train-hour	10.6	9.0	17.8	..	11.2	9.4	19.2	..
Gross ton-miles per train hour	19,983	14,792	35.1	..	20,629	15,178	35.9	..
Net ton-miles per train-hour	9,467	7,879	20.0	..	9,482	7,772	22.1	..
Lbs. coal per 1,000 gross ton-miles	136	.....	..	..	139	.....	..	..
Loco-miles per loco-day	58.9	63.7	..	7.5	60.0	66.6	..	9.8
Per cent freight locos unserviceable	16.4	29.7	..	13.3	17.5	23.8	..	6.3
Per cent freight cars unserviceable	8.8	5.3	3.5	..	7.1	7.2	..	0.1

may not be expected to continue to show in future years the remarkable improvement evidenced in the foregoing record. There are reasons for not holding to this view, which reasons are presumably not vitiated by the fact of their being negative or critical. Thus, there was some comment above regarding the failure of the transportation ratio to show a greater degree of improvement. The following comparison may throw some light on this question.

PERCENTAGE OF TOTAL OPERATING REVENUES, 1926

Expenses	P. R. R.	Total Eastern District	Total U. S.
Maintenance of way	13.1	12.7	13.5
Maintenance of equipment	22.6	21.2	20.0
Transportation	36.8	34.6	34.2
Total expenses (Operating ratio)	77.6	73.73	73.12

It will be noted that on the whole the Pennsylvania ratios are higher than the average for the Eastern District or for the country as a whole. The possibility is that they can be substantially reduced. Thus it was noted in an earlier paragraph that the Pennsylvania's maintenance of way expenses in 1926 were 7 million dollars greater than in 1925 and in 1925 11 million dollars greater than in 1924. In speaking of maintenance of equipment expenses reference was made to an increase over 1925 of 3 million in freight train car repairs. Presumably the increases as compared in 1925 and 1924 represent expenses contingent upon catching up on pre-

revenues. The Pennsylvania's net operating income in 1926 was \$106,432,757 and its total operating revenues were \$709,817,450—the percentage relationship being 14.9. A similar comparison for the eastern district as a whole shows a percentage of 19.0 and for the United States as a whole of 19.1. In this comparison the Pennsylvania Railroad seems out of line. Optimists believe that the Pennsylvania Railroad will not continue in an earnings position so markedly out of line. In other words, they believe that the improvement in earning power and operating efficiency now under way is probably only in its beginnings and not nearing its climax as many may believe. But be that as it may, the stockholder is amply protected by his remarkable equity which with a rate of return of 4.80 per cent on an investment based on pre-war values will yield 13.53 per cent on the par value of his stock.

THE RAILROAD INSURANCE ASSOCIATION, 80 Maiden Lane, New York City, reports that, for the year 1926, it paid claims for fires on railroad properties aggregating \$1,759,224. The largest single item in the list of 112 causes, was "wreck, collision or derailment" (42 fires) \$227,319. The Railroad Fire Insurance Association, Charles N. Rambo, manager, is an organization dealing with railroads on behalf of 12 leading fire insurance companies. The total number of fires in the present report, 1,914, is estimated to be about one-fifth of all the fires occurring on steam railroads in the United States.



The Meeting was Attended by 350 Employees

## Santa Fe Cuts Freight Claims

*System prevention committee decides on further improvements at annual meeting at Tulsa, Okla.*

THE Atchison, Topeka & Santa Fe has reduced its ratio of payments for loss and damage from \$2.53 per \$100 of gross freight earnings in 1908 to \$0.62 in 1926, by a strenuous campaign which has resulted in the perfection of an organization that handles all questions pertaining to loss and damage systematically. The organization is so constituted that local meetings are held throughout the year, culminating in an annual meeting of the System Loss and Damage Prevention committee. The 29th meeting of the latter organization was held at Tulsa, Okla., on March 28 to 31.

Previous to 1908 the Santa Fe in common with most other roads had made little systematic effort to reduce the payments of claims growing out of loss and damage to freight. Since the organization of the committee in that year, it has concentrated on the reduction of loss and damage to freight and has gradually extended its activities to cover losses and damages of all kinds, including personal injuries, loss and damage to baggage, damage to property and damage to stock on the right-of-way.

Notwithstanding the great increase in gross freight earnings, the percentage of freight claim payments to freight revenue has shown a steady decline, while the total amount of claim payments has been reduced from \$1,565,434 in 1908 to \$1,231,419. The results of the work of the committee may be judged from the table in the next column.

### Frequent Meetings Held

Under the organization as it now exists, the agents at the larger stations are required to keep claim prevention constantly before employees under their supervision, holding meetings at frequent intervals with warehouse foremen, truckers, check clerks, receiving clerks, stowmen, bill clerks, switchmen and others, while yardmasters at important stations and division points are required to supervise switching properly so as to minimize rough handling in yards. Switching inspectors

are also employed where a yardmaster's duties are such that he cannot cover the field.

Good-service meetings are held periodically on each division at which the division superintendent presides and the various members of his staff attend, together with representatives from the traffic, claim and safety departments. Station, train, yard and engine employees

Year	Gross Freight Earnings	Payments for Loss and Damage to Freight	Percentage of Freight Earnings
1908	\$61,848,638	\$1,565,434	2.53
1909	64,212,638	1,234,564	1.92
1910	71,194,055	1,141,014	1.60
1911	71,787,200	1,091,435	1.52
1912	71,529,574	939,676	1.31
1913	78,190,922	942,838	1.21
1914	73,638,388	772,300	1.05
1915	80,504,000	771,764	0.96
1916	91,432,429	649,180	0.71
1917	116,907,908	1,234,965	1.06
1918	131,109,611	1,656,673	1.26
1919	144,655,293	2,697,064	1.86
1920	168,472,129	4,310,429	2.56
1921	160,217,450	3,473,769	2.17
1922	158,026,370	1,536,561	0.97
1923	166,352,196	1,818,193	1.09
1924	168,101,036	1,481,046	0.88
1925	176,473,467	1,360,155	0.77
1926	197,812,494	1,231,419	0.62

are invited to these meetings and all matters affecting the loss and damage account on that division are thoroughly discussed.

The third type of meeting occurs twice a year when each assistant general manager holds a "grand division" loss and damage meeting over which he presides, and which frequently extends over three days. Grand division as well as division officers of the various departments attend. Each division superintendent also designates certain employees under his jurisdiction engaged in station, train, yard and engine service to attend these meetings, which take on a wider scope than is possible at division meetings. Detailed performance statistics are presented and standing committees similar to those functioning at the system meeting submit their reports for discussion, acceptance or rejection. Each





assistant general manager has a chief clerk in charge of over, short and damage matters with the necessary clerical force besides a corps of transportation inspectors who devote all of their time to handling loss and damage matters and claim prevention work on their respective divisions.

#### System Meetings Held Annually

The fourth type of meeting is that of the System Loss and Damage Prevention committee which is held at different points over the system each year. Formerly the committee met twice a year but for the last five years these meetings have been held annually. The chairman of the system meeting is G. W. Lupton, assistant to the vice-president in charge of operation, and the committee is composed of the assistant general managers, superintendents of transportation and officers of the traffic, refrigerator, claim, accounting, mechanical and safety departments, together with employees selected from the ranks of agents, train, engine and yard men. There are 16 standing committees with 65 members selected by the chairmen. Prior to each meeting the secretary, F. C. Maegly, assistant general freight agent, circularizes the assistant general managers to determine the subjects that should be given consideration. Any practices of changes agreed upon at the meeting are put into effect immediately.

Prior to the system meeting the members of the standing committees meet and thrash out the questions confronting them and endeavor, with uniform success, to submit unanimous reports. These reports, as well as the subjects appearing on the docket, are discussed freely from the floor and any employee in attendance not only has the right but is expected to voice his objections to and take issue with any portion of the standing committee's report which in his opinion fails in any essential. Mechanical department representatives take an interest in these meetings and render valuable assistance by replying in an educational way to technical questions propounded by train, engine and yard men. Representatives of the traffic department are in attendance and give advice on traffic stipulations and requirements and suggest how certain beneficial changes may be secured.

At the meeting at Tulsa subjects other than those pertaining to the prevention of loss and damage were also considered. S. T. Bledsoe, general counsel, commented upon the improved manner in which passenger trains are being handled and compared the expense of railroad operation at the present time with that before the war. Isaiah Hale, safety superintendent, spoke on

the work of his department and the requirements for leadership, not only as applied to matters of safety but as regards officers in any department. J. M. Nicholson, fuel conservation engineer, presented a paper on fuel conservation in which he outlined the progress being made by the Santa Fe. A. L. Green, special representative of the American Railway Association, discussed the freight claims of the railroads of the United States and Canada in general, commending the Santa Fe employees upon the efforts they have made to place this railroad at the head of the list. F. S. Frye, general traveling agent of the Western Weighing and Inspection Bureau, spoke on the packing and shipping of eggs. Abstracts of a number of the papers follow.

#### Handling Cars in Trains and Yards

Claim payments charged to rough handling showed an increase of 17 per cent over 1925. As 62.9 per cent of these payments were on fruits and vegetables it was felt that the damage was due to other causes and the Committee on Handling Cars in Trains and Yards recommended that terminal forces inspect carload freight at industry team tracks and other places in the presence of shippers and that terminal forces or agents inspect at destination in the presence of the consignee when doors are first opened. It was also recommended that terminal committees prevail upon shippers to appoint a member of their organization to check the loading and bracing of freight at originating industries or tracks. It was agreed that empty cars should be given the same careful handling as loaded cars as the rough handling of empty equipment creates a condition which causes damage to future lading and increases the possibility of claims for delay since the car when loaded may have to be set out at some point for repairs.

It was reported that 90 per cent of rough handling is due to four causes: (1) Unavoidable accidents; (2) lack of judgment as to speed and distance on the part of those giving signals; (3) taking chances; and (4) carelessness. No remedy was offered for unavoidable accidents. It was felt that there is a possibility that speed and distance might be impressed on employees to the extent that the operation would not be slowed up or rough handling result. The remedy for taking chances and carelessness is discipline. Considerable benefit has been secured by the use of impact recorders and it was recommended that as many recorders be assigned to a district as can be used to advantage.

In a paper presented by R. J. Breton, transportation inspector, it was recommended that to reduce rough

handling the speed of freight trains be increased to 40 miles per hour, which would bring about a saving of 20 or 25 minutes in a 100-mile run which saving could be used in slowing down the actual switching operation. This would permit eight or nine hours more time for switching purposes for each train between California and Chicago. He stated that if all covered cars were handled as slowly and with as much care as open ones, the rough handling would be largely eliminated as it is a fact that loaded flat cars are generally handled more carefully because there is danger of the load shifting and the damage is never concealed. The lack of uniformity in the transmission of hand signals was given as a cause for considerable rough handling. Poor signals do not always come from students for it is a fact that some yards and train men of long experience become careless and indifferent when giving signals and often are unmindful of the location of the men who must act upon them. At night many stop signals are given which have the appearance of "Go ahead" signals. During ordinary switching on straight track it is not necessary for all members of a crew to give signals when the engineman can see the one giving the original signals. Much of the rough handling is caused by this bad practice because in most cases the engineman will act on the signal nearest the engine which is always given later than the original signal and too late to avoid hard couplings.

The speed necessary for switching movements is determined almost entirely by the sound from the exhaust of the switch engine, especially at night. For this reason the frequent changing of engines from high to low wheelers, or vice versa, should be avoided as switchmen become accustomed to the exhaust of a certain engine and when a change is made, especially to a high wheeler, the slower exhaust is confusing and invariably too high speed is obtained before it is realized just what is causing the trouble. Reports of the Interstate Commerce Commission show that more rough handling occurs in yards using electric locomotives than in those using steam.

#### Reducing Delays

During the year a number of changes have been made in freight train schedules that have resulted in improving service and at the same time reducing delay. A special campaign has been carried on to overcome delays to individual cars of freight set out on trains en route for one reason or another, particular attention being paid to merchandise on which the record heretofore has not been the best. There has been a marked reduction in the number of cars that have been set out because of being in bad order as cars have been given closer inspection and better preparation before they are placed for loading. A more systematic check has been kept on business heretofore set out between terminals for reducing trains so that consolidations may be effected with following trains and thereby insure the same schedule performance as if the cars had not been cut out of the original train.

The yardmasters' committee recommended that in the makeup of trains a distinction be made between the different classes of empty cars and dead freight (loads and empties segregated) except foreign equipment moving home to owners. At terminals where this is not considered practicable the assistant general manager may make an exception as to the classification of system empties in this territory. It was also recommended that a card be adopted at large unloading terminals for use on cars partially unloaded or loaded on team tracks, such cards to be applied by the team track force when it is necessary to switch the tracks on which they are

standing before unloading is completed. It was also suggested that an intensive study be made by operating officers of the time now allowed terminals for train makeup and that where it appears that too much time is now allowed, it be given to those terminals that do not have sufficient time under present rules to handle train makeup properly.

In the general discussion of train handling it was believed that considerable damage was caused by detaching locomotives to take water. It was recommended that locomotives be detached when on a descending grade or when two locomotives are used on one train. On ascending grades the engineman is able to control the slack in his train and can spot the locomotive accurately at the water spout. No recommendations for a system rule were made as it was believed that the situation was one that should be taken care of locally.

The subject of wooden cars was discussed and it was concluded that an effort be made to place wooden underframe cars on the rear of the train. It was generally agreed, however, that the switching of cars to the rear in making up trains is difficult and therefore no general rule was formulated. It was suggested that an effort be made to determine whether all wooden underframe cars can be discarded. For empty cars it was recommended that they be mixed in the train as when they are placed on the rear the possibility of the train pulling apart is increased.

#### Heavier Loading of Equipment

As a result of the efforts to bring about heavier loading the average carload during 1926 was 30.77 tons for 1,209,517 originating carloads, as compared with 29.62 tons for 1,105,093 carloads originating during 1925. The average loading on carload freight from connecting lines was 26.53 tons in 1926, compared with 26.73 tons in 1925. On l. c. l. freight the average loading on the Santa Fe for the past two years has been 6 tons. While an extensive campaign was maintained during the past grape loading season in an endeavor to have shippers of grapes load heavier, the results were not as successful as might be expected because the shippers felt that as the carriers had ample market cars they would not load heavily, as lighter loads would not only carry better but would market better. The average loading of grapes in 1926 was 14.4 tons as compared with 14.93 tons in 1925.

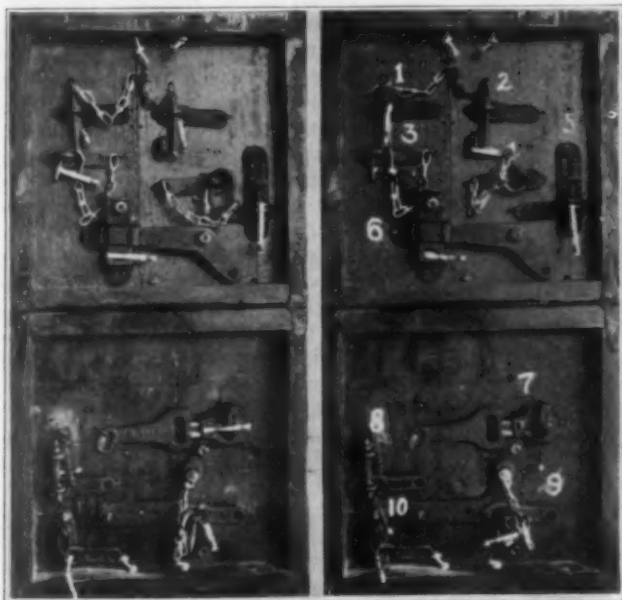
It was felt that the marking of load limits on equipment was beneficial as shippers can then tell the load limit at a glance which in turn stimulates heavier loading, while at the same time it curtails overloading. A campaign for heavier loading is now being conducted on all grand divisions, reports being made each month and attention being directed to light loads.

The seal committee recommended that educational methods be employed to eliminate improperly applied seals, bring about their proper maintenance, and induce the agents or chief clerks at all stations to give seal records their personal attention. It was suggested that a board 2½ ft. by 5 ft. on which different types of hasps and door fastenings are attached and which is being used at Kansas City, Mo., be used in instructing employees whose duties require them to seal cars or to inspect seals. With this board the employee is required to apply a seal to each one of the hasps on the board and thereby familiarize himself with the different types of door fastenings and methods of applying seals. It was also recommended that the mechanical department eliminate the provisions for sealing end doors from the outside as fast as cars are passed over repair tracks by making the end door fasten from the inside.



### Perishable Freight

The perishable freight committee reported that 95 per cent of the payments charged to unlocated damage and rough handling are the result of broken packages and considered that improper handling in unloading and failure to re-cooper packages which can and should be re-coopered is responsible for some of this damage. It also stated that auction markets are to a large extent responsible for this condition. Handling at origin and in transit and incidental switching service are of major importance. The failure to restrip and rebrace loads



Twenty Methods of Applying Seals Are Shown on the Instruction Boards

which have been disturbed at points where shipments have been inspected is responsible for some of the payments under these causes. The committee considered that a reduction in claim payments on perishable freight chargeable to unlocated damage and rough handling can best be brought about by assigning these two causes to a separate committee which should make an analysis of all claims paid for these causes for a representative period (three months or more). An analysis of such claims should develop when conditions need correcting at origin, destination and in transit.

Several opinions were expressed regarding the position of egg cars in the train. Some preferred the proper block, some the head end and some had no preference. It was decided to handle shipments in the proper block and the old rule requiring these cars to be handled 15 to 20 cars from the locomotive in 60-car trains and closer to the locomotive in short trains was cancelled. There has been a decrease of 30 per cent in system claim payments on eggs during 1926 as compared with 1925.

F. S. Frye, general traveling agent of the Western Weighing and Inspection Bureau, advocated the use of impact recorders for egg shipments. He advised against shipping eggs in cars formerly filled with odorous material, and recommended inspection at points of concentration where trucks are used. The question of movable floor racks in refrigerator cars was discussed but no conclusion was drawn as some felt that the movement of racks in transit causes the load to buckle and result in damage. The mechanical depart-

ment men were of the opinion that the racks could not move any appreciable distance.

In handling packing house products it has been found that most of the troubles center about the improper billing, marking and loading. It seems that a change in the personnel of the packing plant shipping department or some disturbance in the loading forces creates a serious situation as far as the loading and distribution of the products are concerned. Improper billing, one of the chief sources of grief, results from shipments becoming separated from the waybill and is sometimes responsible for the disappearance of the shipment entirely. Loading without regard to station order is extremely troublesome, particularly because of the nature of the commodity. If a shipment applicable on billing for a certain destination is not loaded in its proper place it is necessary to shift the load in a car to find it or mark the articles short on the way bill.

Following a discussion of claim payments due to errors of employees, it was recommended that the claim department, before passing claim papers to file, prepare a memorandum on each claim charged to the error of an employee, covering therein the full circumstances of the handling, the nature of the error made, the reason for charging the payment to this cause, the distribution of the payment, and showing how the mistake could have been prevented or corrected. One copy of this memorandum should remain with the claim department file and copies be sent to the superintendent of the division or divisions interested. It was also recommended that the chairman of the committee analyze payments by the various causes that develop and prepare a monthly bulletin calling attention to the different errors which have been paid for and giving an explanation as to how the error occurred and how it could have been avoided.

A COINCIDENCE of the introduction of the locomotive "President Washington" of the Baltimore & Ohio Railroad into regular passenger service will be the presence of the colonial dining car "Martha Washington" in the same train. The "President Washington" will haul train No. 9, leaving New York at 5:00 P. M., and the "Martha Washington" will serve the dinner. As the "President Washington" is one of twenty locomotives to be named after the Presidents, so the "Martha Washington" is one of ten colonial dining cars, named after American heroines, some of whom were wives of Presidents. Besides the "Martha Washington" there is the "Abigail Adams" which will be in dining service with the "President Adams," as well as the "Dolly Madison" with the "President Madison."



Acme

The Flood in Southeastern Kansas



# Atlantic States Shippers' Board

*Large attendance at Washington Meeting—Many visitors—  
Address by Secretary Hoover*

WASHINGTON, D. C.

"THE work of our railway managers, and the results of your co-operation, have brought about an industrial accomplishment such as I do not believe we have ever seen in our country in so short a period of time," said Herbert Hoover, secretary of commerce, addressing the members of the Atlantic States Shippers' Advisory Board which met on April 5, at Washington, with an attendance of about 600.

Reports submitted by the commodity committees, indicated that for the next three months of this year there will be an increase in freight business of from 2½ to 25 per cent, as compared with the same period last year. Mr. Hoover in his address, at the luncheon, which was listened to not only by the shippers and railroad men attending the convention, but also by many government officers, including cabinet members, foreign ministers and others, gave a succinct review of the progress of the last few years in the railroad world, as viewed from the broad standard point of the general public interest. He said, in part:

"The railways came out from the war thoroughly demoralized. Transportation had been subject to periodic car shortages for years before that; and in so short a time as five years we find the country equipped perhaps for the first time with completely adequate transportation. The importance of an adequate supply of transportation has never been sufficiently estimated either to the shipper or to the country as a whole. My impression was, and the estimates we made at the time were, that the shortages in 1921 and 1919 were probably costing the business and industry of the country half the total railway rates that were collected from them. Those distortions constituted one of the contributing things that brought about our great difficulties in 1921 and 1922; and equally this entire reorganization of transportation is one of the most important contributions we have today to the high plateau of prosperity in the United States. The railway managers have not alone provided a sufficiency of transportation and therefore cured a thousand ills in the business world, but they have shown an extraordinary capacity in the improvement of the efficiency of our railroads.

"It is worth remembering that in 1921 our railways had loaded some 42 millions of cars as against 52 millions last year, and that in 1921 they required 1,800,000 men in their personnel, whereas last year they worked under 1,750,000. That has been brought about in some measure, at least, by the co-operation of these advisory boards; and it is a result in which every shipper participates. It is rather an interesting commentary on government ownership of railroads that at the time the railways came out from government operation they were employing somewhere near 1,900,000 men; that they have increased the traffic which they handled at that time by something over 20 percent, and that they are handling it with 200,000 less of personnel. If any one wants to argue the question of government ownership of railways in the United States, he has to get over this concrete demonstration of the capacity of private ownership to solve its own problems.

"Recently we found that the retail lumber dealers were able to carry on their business with approximately four

billion less board feet in stocks than six years ago, estimated to result in a saving of over \$600,000,000 of capital in that one industry. One of the reasons for the abundant capital in our country today has been the enormous decrease in the inventories, not alone in lumber but in dry goods and every commodity in the country, because of the complete confidence of business and industry that they can receive supplies on demand. One of the reasons for the stability in our price levels has been the fact that goods move quickly, and that there is not the stimulus to rising prices and the pyramiding of orders that come about in the face of any suspension of ample transportation.

In the installation of these boards, the proof that it is possible for people of opposite interests to get together and arrange their own problems and settle their own troubles, you are making a demonstration that has a far greater and more far-reaching importance than perhaps the actual acts that you perform at these meetings, because you are demonstrating that it is possible that we can carry on this enormous commerce by co-operative action within our organization itself, and outside of the government."

## Estimates for Second Quarter

Twenty industries predicted in their reports that there would be in the current quarter increases over the same period in 1926 of from 2½ per cent to 25 per cent in their transportation requirements. Those industries were: automotive parts; brass, copper and bronze; confectionery; crushed stone; canned goods; cordage; fertilizer; textile; glass containers; machine and machinery; paper; lime and gypsum; leather; roofing material; rubber; tobacco and paint. Six industries (chemical, iron and steel, salt, slate, lumber and grain and grain products) estimated that their requirements would be about the same. The brick industry expects a decrease of from five to ten per cent. A falling off of 17 per cent is estimated by the anthracite industry, but production last year was abnormal. The volume of paper and pulp is expected to be 7½ per cent greater than last year.

Requirements for bituminous coal will be about ten million tons a week during April, May and June and slightly over one million tons a week for anthracite. In anticipation of strike of bituminous miners throughout the country, there has been a general stocking of bituminous coal so that little embarrassment is anticipated. Stocks on hand as of March 15 are decidedly greater than on the same day last year, both as to bituminous coal and anthracite.

W. C. Kendall, of the Car Service Division, A.R.A., presented a report on general conditions throughout the country in part as follows:

At all of our Advisory Board meetings in 1926 we were able to state that transportation conditions were in excellent shape, that new all-time records in operation were being established, that relationships with the public were fast approaching the ideal and that the so-called railroad problem no longer carried an air of mystery and uncertainty. In only one unit has there been failure to improve perceptibly over previous records and that is in the average load per car. The reasons for this are

explainable, and with shippers and receivers extending their co-operation, we expect to show an increased load at least in proportion to the increasing capacity of cars.

As to current business conditions, there is nothing on the horizon which should create anything but optimism. The car loadings recorded so far in 1927 exceed any previous similar period—11,356,187 cars up to and including the third week of March. This is about 3 per cent over 1926, and 4.6 per cent over 1925. Some of this increase is due to the heavy bituminous coal movement incident to the anticipated strike of miners, but it will also be borne in mind that the anthracite loading a year ago was down on account of mine labor troubles. The high level of loadings is being sustained in all districts except the Northwest and to a lesser extent in the Central West. Miscellaneous and merchandise loading show continuing increases due in large measure, probably, to that economic factor which is becoming recognized as "hand to mouth" buying, and which no longer is looked upon as a signal of distress.

One of the most interesting developments in connection with the boards at this time is that in which we are endeavoring to so standardize and unify the reports of commodity committees of all the boards that it will be possible for the Car Service Division to publish a consolidated forecast of car requirements by board districts for the country as a whole on a quarterly basis. Such consolidated reports representing the best thought of thousands of representatives in each line of industry should form the very best index possible to the business situation. For example, the forecast of loadings covering 35 commodity designations for the Pacific Northwest territory for the month of January, 1927, was given at a meeting on December 15 as 87,371 cars, and we are advised that the actual loading for these commodities for the month in question was 88,985 cars, or a difference of less than two per cent.

The Allegheny Board has just prepared and distributed its forecast of commodity shipments for the second quarter of 1927, compared with the same quarter in 1926 and for all commodities it indicates a prospective increase of slightly over six per cent. The New England Board, in a like forecast, indicates a two per cent increase. The Southwest Board reports for the 27 commodity classifications included in the National Forecast 516,986 cars for the second quarter of 1927, as compared with 499,749 cars for the same quarter of 1926. The Pacific Coast Board predicted an increase of six per cent. A slight average increase was reported for the Southeastern district for the second quarter of 1927.

In only two districts do the reports rendered at the last

board meetings indicate a decrease; for the first quarter of this year, the Pacific Northwest indicated a 2.3 per cent decrease and the Central Western a 4.2 per cent decrease. For neither of these districts are the figures available for the second quarter of this year.

It is the purpose of the Car Service Division to nationalize this forecast, from quarter to quarter, beginning if possible with the third quarter of 1927 by which time we hope that the commodity and other committees of all boards will have their work in such shape as to make possible a countrywide summarization of business conditions. This work is now very nearly complete.

#### Discussion

The program included a general discussion of the subject of heavier loading of cars, based on a preliminary report showing an improvement in the lading of cars with fertilizer. At the outset, W. H. Chandler, of the New York Merchants' Association, said he thought there ought to be a clear understanding as to whether the campaign for heavier loading is a first step toward one for heavier carload minimums in the classifications, because many shippers, not members of the organization, had expressed to him the fear that it was. He said that if that was the case it would tend to defeat the results hoped for, and that many would like to have a clean-cut expression from the railways.

W. J. Gormley, chairman of the Car Service Division of the American Railway Association, promptly replied that he was glad the question had been raised because he had said that raising the minimums would not give the desired results. When the Car Service Division was given the job of trying to increase the loading of cars it had taken the position that it did not want anything to do with the minimums. So far as the Car Service Division is concerned, he said, he did not care whether the minimums are ever changed or not, because he knew that the shippers must have minimums that can be used when they have orders for less than a full car, and that the best results can be obtained by education and co-operation. "I know of no plan for increasing the minimums," he said, "and I know it is no part of the plan of the Car Service Division. We know it is to the interest of the country to handle as much freight as possible with fewer cars. If we can increase car movement, reduce demurrage and increase the loading we can increase capacity without more cars."

Mr. Chandler said that that was an unequivocal answer and a satisfactory one.

It was decided to hold the next meeting of the board in October at Atlantic City.



Japanese Built Electric Locomotive in Service in South Manchuria



## C. M. & St. P. Automobile Cars With 12-ft. Side Doors

THE Chicago, Milwaukee & St. Paul has recently designed a new automobile car of more than average capacity in which the light weight has been kept down as much as possible consistent with substantial construction and the best modern design. With an interior capacity of 4,671 cu. ft., and a limit load capacity of 112,300 lb., the light weight is but 56,700 lb. Twelve-foot side doors are provided, as well as a two-ton permanent loading rail and numerous lifting stirrups to facilitate handling automobiles. Dalman extra spring capacity trucks with Barber lateral motion device and Creco four-point brake beam supports are specified. Draft gears are of the National M-17 type. Five hundred cars of this design are being built by the Pullman Car & Manufacturing Corp.

The inside dimensions of the car are: Length 50 ft. 6 in.; width 9 ft. 2 in.; height 10 ft. The side framing is of structural steel, employing the Howe truss and designed to meet A.R.A. specifications. The side doors afford a clear opening 12 ft. wide by 9 ft. 8 in. high, and are placed in staggered position to each other, 6 ft. each side of the center line of the car. The framing is reinforced at the side sill below the door openings with a 9-in., 15-lb. rolled steel channel as illustrated, also above

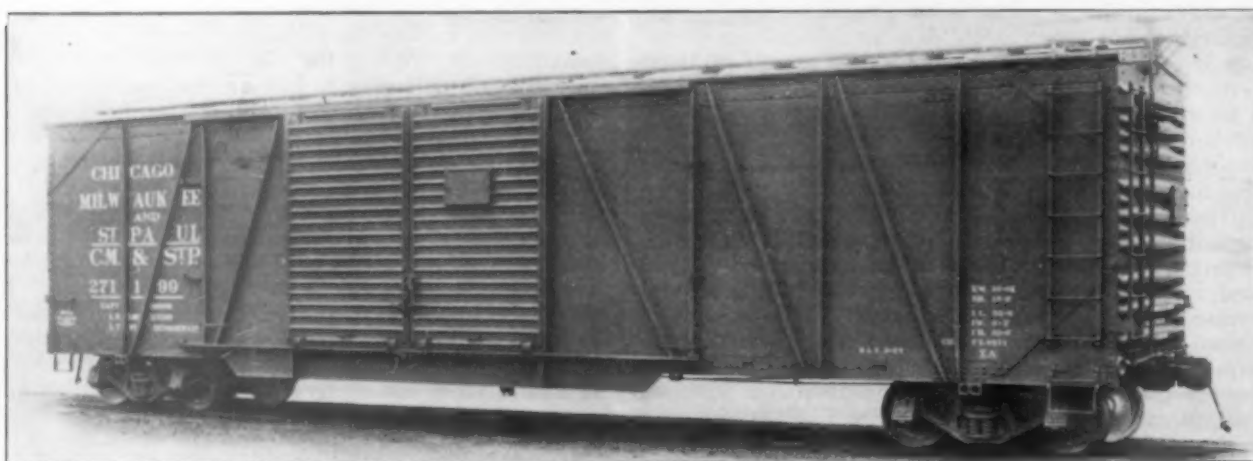
3-in. by 3-in. furrings. The sides of the car are lined with 1½-in. and 2½-in. tongued and grooved fir, the flooring being of 2¼-in. tongued and grooved fir, securely fastened at the ends and fitted with positive grain seals.

The end sill is secured to the side sill with underframe diagonal braces in conjunction with malleable push pole sockets. The side sills are also arranged with a combination roping, staple and jacking casting at the bolster. The cars have an over-all maximum height from the rail to the top of the brake mast of 15 ft. 3¾ in. The extreme width of the car over the roof sheets is 10 ft. 3/16-in.; the height from the top of the rail to the eaves is 13 ft. 9 in.

The underframe construction consists of center sills in one piece from striking casting to striking casting, made from two 12-in., 30-lb. channels, one 22-in. by ¼-in. top cover plate and two 3½-in. by 3-in. by 5/16-in. rolled steel bottom chord angles.

The bolster center filler and draft gear stop member is an integral steel casting. Body bolsters are formed from 5/16-in. pressed steel flanged diaphragms, spaced 8-in. apart with a reinforcing casting over the body side bearing. Cover plates, 2 in. by ½-in., extend from side sill to side sill.

The floor supports are of ¼-in. pressed steel flanged plate. Cross bearers, four in number, are formed from ¼-in. pressed steel flanged diaphragm with ½-in. by



New automobile car being built for the Milwaukee by the Pullman Car & Manufacturing Company

the door opening with a 4-in. by 3-in. by 5/16-in. angle.

The Youngstown pressed steel doors are provided with Camel fittings, having bottom rollers which can be readily lubricated and an opening and closing attachment to assist in the work of loading and unloading. This arrangement prevents damage to the car or annoyance to the shipper. Interlocking weatherproof seals are furnished at the rear of each door and also provide a closing joint at the center where the doors come together.

The steel center posts are fitted with wood fillers and have an automatic locking attachment. The grain door nailing strips at the door post fillers have been especially designed so as to fit flush with the lining and thus avoid damage to the lading or annoyance to shippers when unloading automobiles. Possible difficulty is also avoided when these cars are loaded with grain or some similar commodity for which scrapers are used for unloading purposes.

The Dreadnaught steel ends, consisting of three pressed steel sections are completely weatherproof and lined with 13/16-in. vertical sheathing resting against

6-in. cover plates running from side sill to side sill. Knee bracing is provided between the side sill reinforcing channel at the door opening.

The Hutchins all-steel galvanized flexible iron roof is

### Stress and Deflection in Loading Rail with Various Concentrated Loads Applied Midway Between Two Carlines

Load In Lb.	Calculated Results			Observed Results		
	Bending Moment In Lb.	Stresses Lb. per sq. in.	Deflec- tion In.	Deflec- tion In.	Spread at Side Plate	Sag in Side Plate
4,000	37,500	33,500	.81	.81	¼ in.	.....
5,000	46,800	41,800	.999	.94	⅜ in.	.....
6,000	56,200	50,200	1.215	1.06	½ in.	.....
7,000	65,600	58,600	1.404	1.31	⅝ in.	.....
8,000	75,000	67,000	1.593	1.69	¾ in.	.....

Permanent set in loading rail, ¼ in.

fitted with diagonal roof braces at each end and at the center of the car. The running boards are spliced in two places and are fitted with a special wide saddle having a 4-in. by 3/16-in. steel plate fitted flush into the boards and held in place with bolts.



An interesting feature of the work on this car was the calculation of stresses and deflections due to various loads applied to the permanent loading rail and then seeing how these figures checked with actual measured deflections under test loads. The table shows the results of these tests with a concentrated load applied midway between two carlines (the most severe condition). While weights up to four tons were handled, this caused an actual deflection of 1.69 in. and a permanent set of  $\frac{1}{4}$ -in., whereas the stress and deflection figures indicate that loads up to two tons can be readily handled with a reasonable factor of safety and no permanent effect on the car superstructure.

## Rail Production in 1926 Greatest Since 1913

THE production of steel rails in the United States in 1926, 3,217,649 gross tons, was greater than in any preceding year since 1913 when the total was 3,502,780 gross tons. At no time in the intervening period did the production reach 3,000,000 tons. The total in 1926 is to be compared with 2,785,257 tons in 1925 and 2,433,332 tons in 1924. These statistics on rail production, which were prepared by the American Iron & Steel Institute, disclose another fact that is even more significant than the large output of 1926, namely, the marked increase in the rolling of rails weighing 100 lb. per yard and heavier. Rails of this classification rolled last year totaled 1,966,440 tons as compared with 1,636,631 tons in 1925. Expressed in percentages, the output of these heavy rails represented 61.2 per cent of the total in 1926, as compared with 58.8 per cent in 1925, 49.3 per cent in 1924 and 26.9 per cent in 1916.

Bessemer steel has ceased to be a factor in the manufacture of rails purchased by the carriers, for while there was an increase from 9,687 tons in 1925 to 12,533 tons in 1926, in the output of Bessemer steel rails, only 1,169 tons of Bessemer rails weighed 85 lb. or more per yard and no Bessemer steel was used in sections of 100 lb. or more. Marked impetus was given during 1926 to the production of alloy-treated rail which totaled 16,371 tons. This is a pronounced increase over the total of 4,009 tons produced in 1925 but is slightly less than the total in 1917. However, in comparing the operations of 1926 and 1927 in this special field of rail manufacture it is of interest to note that out of 16,535 tons of special-steel rails rolled in 1917, 15,273 tons represented titanium steel whereas with almost exactly the same total in 1926, the larger proportion or 15,191 tons was manganese steel. Titanium steel comprised only 1,099 tons.

### Production of Rails by Processes, Gross Tons, 1911-1926

Years	Open-hearth	Bessemer	Rerolled *	Electric	Iron	Total
1911	1,676,923	1,053,420	91,751	462	234	2,822,790
1912	2,106,144	1,090,926	119,390	3,455	...	3,327,915
1913	2,527,710	817,591	155,043	2,436	...	3,502,780
1914	1,525,851	323,897	95,169	178	...	1,945,095
1915	1,775,168	326,952	102,083	...	...	2,204,203
1916	2,269,600	440,092	144,826	...	...	2,854,518
1917	2,292,197	533,325	118,639	...	...	2,944,161
1918	1,945,443	494,193	101,256	...	...	2,540,892
1919	1,893,250	214,121	96,422	50	...	2,203,843
1920	2,334,222	142,899	126,698	297	...	2,604,116
1921	2,027,215	55,559	96,039	5	...	2,178,818
1922	2,033,000	22,317	116,459	...	...	2,171,776
1923	2,738,779	25,877	139,742	...	...	2,904,516
1924	2,307,533	16,069	109,730	...	...	2,433,332
1925	2,691,823	9,687	83,747	...	...	2,785,257
1926	3,107,992	12,533	97,124	...	...	3,217,649

\* Rerolled from old steel rails.

### Production of Rails by Weight Per Yard, 1910-1926

Years	Under 45 pounds	45 and less than 85	85 and less than 100	100 pounds and over	Total gross tons
1910	260,709	1,275,339	2,099,983	...	3,636,031
1911	218,758	1,067,696	1,536,336	...	2,822,790
1912	248,672	1,118,592	1,960,651	...	3,327,915
1913	*270,405	†967,313	2,265,062	...	3,502,780
1914	*238,423	†309,865	868,104	528,703	1,945,095
1915	*254,101	†518,291	742,816	688,995	2,204,203
1916	*295,535	†566,791	1,225,341	766,851	2,854,518
1917	*308,258	†882,673	989,704	763,526	2,944,161
1918	*395,124	†665,165	888,141	592,462	2,540,892
1919	*263,803	†495,577	965,571	478,892	2,203,843
1920	*489,043	†433,333	952,622	729,118	2,604,116
1921	*211,568	†214,936	902,748	849,566	2,178,818
1922	*265,541	†274,731	728,604	902,900	2,171,776
1923	*272,794	†300,907	864,965	1,465,581	2,904,516
1924	*191,046	†213,274	853,431	1,175,580	2,433,332
1925	*163,607	†219,648	765,371	1,636,631	2,785,257
1926	*197,260	†256,287	797,662	1,966,440	3,217,649

\* Includes rails under 50 pounds. † Includes 50 pounds and less than 85 pounds.

### Production of Alloy-Treated Steel Rails, 1917-1926

Years	Total production Gross tons	Production by alloys		Production by processes		Production by weight per yard			
		Titanium	Other alloys	Open-hearth and elect.	Bessemer	Under 50 lbs.	50 and 85 lbs.	85 and 100 lbs.	100 lbs. and over
1917	16,535	15,273	1,262	16,535	...	...	335	6,671	9,529
1918	3,111	2,891	220	3,111	...	...	47	2,640	424
1919	6,476	6,207	269	6,476	...	...	...	3,920	2,556
1920	12,909	11,652	1,257	12,909	...	...	514	5,069	7,326
1921	6,276	2,804	3,472	6,276	...	...	71	4,277	1,928
1922	3,163	2,493	670	3,163	...	...	321	835	2,007
1923	2,142	346	1,796	2,142	...	...	56	317	1,769
1924	5,167	1,696	3,471	5,167	...	...	...	847	4,320
1925	4,009	1,616	2,393	4,009	...	...	70	...	3,892
1926	16,371	1,099	15,272*	16,371	...	...	42	3,072	13,257

\* Included 15,191 tons of manganese steel and 81 tons of copper steel.

## Accident Investigations in Month of October

In the month of October, 1926, the Bureau of Safety of the Interstate Commerce Commission investigated eight collisions and two derailments. Abstracts of the reports of W. P. Borland, director of the bureau, on these cases, are given below.

**Yazoo & Mississippi Valley, Greenville, Miss., October 2, 4:40 a.m.**—Northbound extra freight train 80, ran into standing cars within yard limits, badly damaging the engine and two cars; engineman, fireman and brakeman killed and 12 persons injured, the injured being mostly employees of a log-loading company, riding on the freight. Within yard limits the freight should have been running under control but the engineman had not shut off steam. Though fatally injured, the inspector finds that he had told a friend that he had been having difficulty in closing the cylinder cocks, and evidence seem to indicate that he had become engrossed in this task so that he did not keep a good look-out. The inspector criticises the common use of the main track for switching and suggests that probably Rule 93 ought to be supplemented. It appears that freight cars are habitually left standing on the main track at night without protection and without a light of any kind on the car at the end of the string.

**Southern, Hicks, Tenn., October 4.**—Westbound passenger train No. 101, moving at about 15 miles an hour, collided with east bound freight extra 281, overturning the freight engine and doing other damage. The engineman of the freight was killed and three employees were injured. The operator at Vasper neglected to deliver to the passenger train an order that he had received, fixing a meeting point with the freight. He delivered to the train a clearance card stating that there was no orders for that train. According to the rule, he should have filled out a clearance card immediately after copying the order, but this he did not do, and thereby deprived him-

self of a check against error which probably would have attracted his attention to the undelivered order. The order was hidden beneath other papers on his desk. Although this operator performs the varied duties of station agent and express agent, the work is not arduous and the inspector holds that there was no excuse for his failure.

*Virginian*, Rock, W. Va., October 6.—Collision between a freight train and a gasoline track car, two employees killed and four injured. The track car had been given right to road by mistake when the freight already was moving between Kegley and MX Tower. This accident was reported in the *Railway Age* of December 4, page 1102.

*Michigan Central and New York Central*, Gibson, Ind., October 7.—Westbound Michigan Central train No. 41 ran into a track car of the New York Central, at the crossing of the two roads, and four employees were killed and one injured. This accident was reported in the *Railway Age* of December 4, page 1102.

*Southern* (C. N. O. & T. P.), Williamstown, Ky., October 15.—Southbound passenger train No. 97, moving at about 15 miles an hour, was derailed by a spike which was lying on the rail with its point toward the approaching train; and the locomotive was overturned. The fireman was killed and three other employees were injured. New rails were being laid near the scene of the derailment but the inspector could not determine under what circumstances the spike had been put on the rail.

*Pennsylvania*, Toledo Junction, Ohio, October 24, 1:05 a.m.—Westbound freight train, extra 8897, moving at moderate speed, ran into the rear of a preceding freight which was at a standstill waiting for a signal, and the locomotive was overturned. The conductor of the standing train was killed and two other employees were injured. The inspector finds the flagman of the standing freight at fault and also the engineman for not running under control, the movement having been under a permissive (manual) block signal indication given at B. & O. Junction, six miles east of Toledo Junction. The inspector calls the attention of the company to the hazy notions held by the engineman who was at fault, concerning the speed limit imposed by the permissive signal. Though inconsistent in his statements, he claimed that under the permissive signal, he could run at 17½ miles an hour, this being his interpretation of the rule, in effect on lines worked by automatic signals, which limits the speed of a train encountering a caution signal to one-half its authorized rate, and 35 miles an hour being the maximum speed allowed for freight trains at this location. The freight trains in this case moving under the manual block system were on Track 3, while Tracks 1 and 2 have automatic signals.

*Atlanta, Birmingham & Atlantic*, Deerhurst, Ala., October 27.—Northbound freight No. 84 derailed because of poor track; fireman killed and three other employees injured. This derailment was reported in the *Railway Age* of December 11, page 1159.

*Atlantic Coast Line*, Blanton, Fla., October 28.—Collision between a work train moving north and a ballast train of 30 cars moving south, making a bad wreck and causing the death of the fireman of the northbound train; six other employees were injured. A six-page review of the evidence ends with the brief statement that the conductor and the engineman of the southbound train misread a train order. Both of these employees were experienced men and the inspector finds no excuse for their blunder. There was a good deal of contradictory testimony and the term "misread" apparently should not be taken too literally. Both the conductor and engineman

neglected to show the order to other employees, as required by the rule.

*Chicago, Milwaukee & St. Paul*, Davenport, Iowa, October 29, 10:47 p. m.—Westbound passenger train No. 25 moving southward over the wye at the west end of the Mississippi River bridge, preparatory to being pulled back into the station at Davenport, collided at the switch with a yard engine which was to be attached to the rear of the passenger train; and the engineman of the yard engine was killed. One other employee was injured. The passenger train is said to have been moving at low speed, but the responsibility is placed on the conductor and engineman of the yard engine as they were on the time of the passenger train without having made any effort to flag it. Movements at this point are made under the rules of the Davenport, Rock Island & North Western, over which the St. Paul trains run between East Moline, Ill. and Davenport.

*Southern*, Kingville, S. C., October 30.—Westbound freight extra No. 715, having passed the point where it should have met an opposing extra, 866, collided with that train and wrecked several cars. A student fireman on the westbound train was killed and two drovers and two employees were injured. The engineman of the westbound train had fallen asleep about two miles east of Kingville and did not awaken until "he began crawling out of the wreckage after the occurrence of the collision." This engineman had been on duty about nine hours after nine hours off duty and he averred that he had taken his regular rest; offering no other explanation except that he had been a little bilious and had had a headache. The regular fireman was in the caboose and the student was firing. The head end brakeman was also in the caboose. The conductor had noted that the speed approaching Kingville was excessive but he did not attempt to stop the train by the conductor's valve until it was too late. The westbound train, according to custom, was to be backed off at the far end of Kingville yard and this custom appears to have been of long standing, although contrary to the rule which says that at a meeting point the inferior train shall leave the main track at the first switch. The eastbound train was running under control and had nearly stopped. The conductor of 715 also ignored the rule under which he should have given a signal with his lantern, one mile short of Kingville, to indicate the approach to a meeting point. At Kingville the two legs of a wye are used in place of a passing track and the report suggests that a passing track ought to be put in.



Wide World

The "Texas," a Veteran of the Civil War, on Its Way to the Cyclorama, Atlanta, Ga.



## New Books

*Tool Foremen's Proceedings.*—Compiled and edited by G. G. Macina, secretary-treasurer, 11402 Calumet Avenue, Chicago. Imitation leather, semi-flexible binding, 176 pages, 5-in. by 9-in., illustrated, price \$2.50 per single copy.

This book contains a detailed report of the fourteenth annual convention of the American Railway Tool Foremen's Association held at Chicago, September 1, 2, and 3, 1926. In addition to a number of important addresses bearing on the tool foreman's work the book contains committee reports presented at the last annual meeting together with the subsequent discussion. Drawings are included of the recommended standard boiler taps, the adoption of which constituted one of the most important works ever undertaken by the association. The book is well arranged and indexed for convenient reference.

## Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

### Books and Pamphlets

*The Changing Environment of American Industry and the National Industrial Conference Board*, by Magnus W. Alexander. 56 p. Pub. by National Industrial Conference Board, Inc., New York City.

*Politique et Fonctionnement des Transports Pendant La Guerre*, by Marcel Péschaud. A comprehensive study issued as one of the series on Economic and Social History of the World War by the Carnegie Endowment for International Peace. 305 p. Pub. by Yale University Press, New Haven, Conn.

*Revolt in the Desert*, by T. E. Lawrence. Col. Lawrence's achievements in co-ordinating transportation and operating someone else's railway for his own purposes that are related in this volume will be of greater interest to transportation men than is his wider fame as a train-wrecker. 360 p. Published by George H. Doran Co., New York. \$3.

### Periodical Articles

*The Dilemma of the New Statistics*, by Leonard P. Ayres. "The most obvious characteristic of the new statistics is that its methods are complicated and its terminology made up of strange words." p. 3. Suggestions are made looking towards simplification and re-establishment of lines of communication between the old school and the new. *Journal of the American Statistical Association*, March, 1927, p. 1-8.

*Geography's Part in Factory Sites*, by John A. Piquet. Advantages of location, transportation, and other factors that cause industries to be established, or to move. *Nation's Business*, April, 1927, p. 37-38, 40.

*Illinois Central Electrification*. Eleven illustrated articles by various experts on special features of the Chicago Terminal electrification of the Illinois Central. *General Electric Review*, April, 1927, entire issue.

*The O'Fallon Case and the Theory of Railway Valuation*. *Commercial & Financial Chronicle*, April 9, 1927, p. 2039-2041.

*Report of the Committee on Compensation Legislation for Interstate Commerce Employees*. Discussion, p. 41-52 brings out some history of this type of compensation. Proceedings of 13th Annual Meeting, International Association of Industrial Accident Boards and Commission published as *Bulletin of the Bureau of Labor Statistics* No. 432, p. 39-41.

*Time Table Talk*, by Arthur Guiterman. Verses inspired by reference marks in railroad time tables which further explain what they mean. *Life*, April 7, 1927, p. 7.

*Reasonable Rate of Return in Public Utility Cases*, by Howard D. Dozier. What, in the light of various statistical exhibits, constitutes such a rate of return. *Journal of Land and Public Utility Economics*, February, 1927, p. 71-76.

## Looking Backward

### Fifty Years Ago

Conductors on the Lehigh Valley have received orders from the train dispatchers to put away their own passenger trains, and also to make them up. This work has heretofore been done by the baggage masters.—*Railway Age*, April 19, 1877.

Over 360 engineers and firemen of the Philadelphia & Reading struck on April 14. The company has filled almost all the vacancies and John E. Wooten, general manager, says that the men can now shift for themselves. Public sympathy is to a very large extent with the strikers.—*Railway Age*, April 19, 1877.

Two of the principal railway companies with headquarters in Chicago have undertaken retrenchment in a somewhat new direction by abolishing their engineering departments and turning the duties heretofore devolving upon the chief and division engineers over to the division superintendents, subject to the occasional oversight of a consulting engineer.—*Railway Age*, April 19, 1877.

### Twenty-Five Years Ago

The last rail of the double track of the Chicago & North Western between Omaha and Chicago was laid on April 11, completing the first line of double track between these points and giving the Vanderbilt interests a double track between Omaha and New York.—*Railway and Engineering Review*, April 19, 1902.

Charles M. Levey, superintendent of the Iowa lines of the Chicago, Burlington & Quincy, will succeed Howard Elliott as general manager of the Missouri lines. Daniel Willard, heretofore assistant to President Underwood of the Erie, has been elected third vice-president of that railroad.—*Railway Gazette*, April 18, 1902.

Wall street discovered suddenly on April 11 that a group of capitalists, with John W. Gates at its head, had become owners of a controlling interest in the Louisville & Nashville and that at the same time the prices of the shares had advanced within a week from 108 to 133. In view of conferences between Mr. Gates and his associates and J. P. Morgan & Co., it was the expectation that the Southern would inherit the control of the Louisville & Nashville.—*Railway Age*, April 18, 1902.

### Ten Years Ago

One of the first steps taken by the government in relation to the railroads after the declaration of war was the calling out of the National Guard troops for the guarding of railroad bridges, as well as other important public and private property.—*Railway Review*, April 14, 1917.

William H. Bremner, general solicitor for the Minneapolis & St. Louis, has been elected acting president, succeeding E. L. Brown, resigned on account of ill health. Whiteford R. Cole has been elected chairman of the board of directors of the Nashville, Chattanooga & St. Louis to succeed the late E. C. Lewis.—*Railway Review*, April 14, 1917.

Plans for the co-ordination of activities of the railways of the United States so that they will be operated practically as a single system in meeting the transportation needs of the country were adopted at a meeting of more than 50 railway executives at Washington on April 11, following the declaration of a state of war between the United States and Germany on April 6. The policy of operation will be formulated by a special committee on National Defense of the American Railway Association, divided into six departments, each to correspond with one of the military departments of the army.—*Railway Age Gazette*, April 13, 1917.



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## Odds and Ends of Railroading

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"Billy, do you know what happens to little boys who tell lies?"  
"Sure, they ride for half-fare."—*Railway Life*.

George—"There goes a fellow that whistles at danger."  
Sam—"He must be a very brave fellow. Who is he?"  
George—"A locomotive engineer."

Another cat obtrudes herself upon the notice of the railways. This is Sally, of purest alley pedigree, who attached herself to the Gold Coast Limited. Sally rides the rods with really professional skill, and defies all the efforts of the train crew to evict her. She "bummed" her way from Ogden, Utah, to Chicago. Being black, Sally was regarded by the superstitious as an ill omen, but nothing has happened to the trains she rides, so this impression is wearing off.

### Watchman, What of the Brake Rigging?

John Onofrio of New Haven, Conn., a track foreman of the New York, New Haven & Hartford, has been cited for his alertness in observing a dragging brake beam in a passing freight train, and stopping the train; and the February record of these citations says that this is the sixtieth time that Mr. Onofrio has been commended for exceptional vigilance.

### Feeling Sorry for the Steam Locomotive Again

Commenting on the new interest in improving the appearance of locomotives, a New York paper says:

"It is well that this is to be the case. With the coming of hydro-electric power the day may be not far distant when the splendidly impressive masses of moving steel and iron will give place to electric locomotives, which are about as impressive in appearance as an oversized motor truck. The dolphin in the last moments of his life is said to clothe himself as the rainbow. And if the locomotive is to die, why not let it do so in resplendent apparel?"

This department rejoices in the approval of this improvement. About that analogy to the dolphin, however, we wonder. Various bards have been singing a swan song for the steam locomotive for some decades now, but the contrary old thing refuses to kick the bucket. Instead it seems just for spite to grow larger, more powerful—and now more pleasing to the eye—each year.

### The St. Louis & O'Fallon Case

Among the various newspaper interpretations placed on the Interstate Commerce Commission's decision in the St. Louis & O'Fallon valuation case the most amusing was one printed in a Washington paper on the day following the decision, predicting that it would soon be issued.

"The Interstate Commerce Commission is scheduled to decide soon whether or not it wants to continue in business. The decision will come in the form of the commission's ruling on what it regards as the proper method of railroad valuation.

"If Supreme Court method of valuation is applied to the railroads it will increase their valuation from \$18,900,000,000, the amount allowed by the I. C. C. in 1920, to over \$36,000,000,000.

"If such an enormous valuation is fixed for the railroads, it will virtually eliminate the I. C. C. as a regulating agency, according to government rate experts here. The railroads, in order to earn 6 per cent on \$36,000,000,000, will be authorized to charge rates higher than the actual traffic conditions will bear.

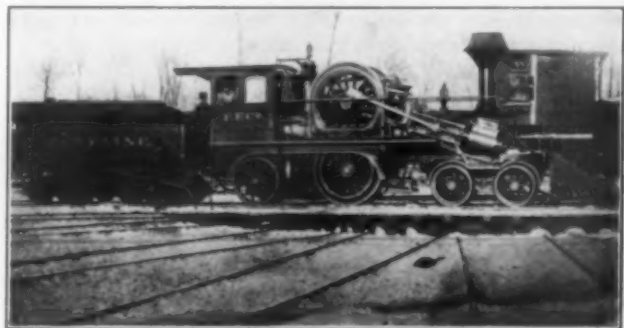
"They will regulate themselves in order not to lose traffic and the use of the Interstate Commerce Commission, except to collect statistics and eliminate minor discriminations, will be largely a thing of the past."

The newspaper may be reassured, because in the opinion of at least four of the commissioners, who dissented from the majority opinion, the commission did not apply Supreme Court methods, and at least one of the majority, Commissioner Eastman, took the position that the commission should advise the Supreme Court, rather than confine its attention to past utterances of the

court, because "as to such matters it occupies a daily front seat upon the stage, while the Supreme Court of necessity is only an occasional visitor in the balcony."

### Inventive Genius in the '80's

The locomotive illustrated looks almost as strange and prehistoric as a pterodactyl, yet, 45 years ago, its proud inventor, Eugene Fontaine, thought it the ultimate in locomotive design. It was built with two driving wheels above the boiler, so arranged that their treads pressed upon and transmitted motion



The "Fontaine," a Locomotive That Was to Solve Many Problems, But Didn't

to two carrying wheels by frictional contact. The locomotive was built by the Grant Locomotive Works, Paterson, N. J., in 1881, and, though it was tried in a variety of services, it proved completely inefficient.

### Setting Locomotives to Music

The comment published in our March 26 issue on this page concerning musical composition built on a railroad motif, brings to mind a letter written to the editor of the *Railway Mechanical Engineer* by "Locomotive Tuner" and published in the December, 1924, issue of that magazine. The letter follows:

"At first thought, it seems to require a rather elastic imagination to compare the music of a symphony orchestra to the sounds produced by a locomotive under way—most locomotives, at least. Yet there is in reality a bond of sympathy existing between the endeavors of those who guide the movements of each—that striving for a degree of mechanical perfection that will produce results embodying both harmony and rhythm.

"Two well known symphony orchestras have recently presented for the approval of their audiences in this country, a composition by Arthur Honegger, a French composer, entitled 'Pacific 231.' It seems that this young composer, from childhood, has had a passion for locomotives and if the favorable comment which his musical production has created may be taken as an indication, it is safe to say that he has been unusually successful in translating the audible impressions of a powerful modern locomotive at high speed into a pleasing musical theme. The composer of 'Pacific 231' has drawn a musical picture of a train driving through darkness at high speed. Quoting the words of the musical critic, he has projected an idealized vision of a marvelous modern world in which man has extended himself and his powers through muscles of steel and tissues of copper and brass. He has pictured man as a conquerer of time and space by his mechanical mastery of stupendous forces and the genius with which he has bent them to his will.

"All this the composer has accomplished with music. The locomotive engineman may also be credited with a subconscious effort to produce 'mechanical music' with the powerful machine under his control when, at the end of each run, he writes on his work report, 'Square up valves.'

"LOCOMOTIVE TUNER."

# NEWS of the WEEK



Boston & Albany—Photo by C. Parker

THE BUREAU OF ACCOUNTS of the Interstate Commerce Commission has proposed that an order be entered concerning depreciation charges of express and sleeping car companies substantially the same as that entered with respect to depreciation charges of steam railroads, and the Commission announces that hearings will be held before Examiner Bunten at Washington on May 17 as to express companies and on June 14 as to sleeping car companies.

THE CHICAGO SECTION of the American Society of Mechanical Engineers on April 21, will participate in Oil Power Week with a meeting at the rooms of the Western Society of Engineers. Two addresses are scheduled, one by Lloyd Yost, manager of the Research Division of Fairbanks, Morse & Company, entitled "Recent Developments in the Design and Application of Diesel Engines," and the other by L. B. Michael, mechanical engineer of the Chicago & North Western, who will discuss the experience of this organization with the Diesel electric locomotive for yard service.

## Commerce Department to Study Transportation in Europe

Norman F. Titus, chief of the transportation division, Department of Commerce, will start for Europe on May 25, to study transportation conditions. He will investigate inland waterways, will conduct a personal investigation of European warehousing facilities and will gather data on port organizations and facilities, to be incorporated in a series of bulletins to be issued later. He will also investigate European ship construction and operation, seeking data for use in the consideration of the American merchant marine problem.

## A. S. M. E. at Altoona May 6

The Central Pennsylvania Section of the American Society of Mechanical Engineers will meet on Friday, May 6, at the Penn Alto Hotel, Altoona, Pa. The following tentative program has been planned: After an inspection trip through the Altoona Works of the Pennsylvania Railroad and luncheon at the hotel, the

meeting will be opened by an address by F. G. Grimshaw, chairman; papers on the Master Plate Fulcrum Scale and the Diesel Electric Locomotive by R. N. Miller and F. K. Fildes, respectively, will then be read and discussed. Mr. Miller and Mr. Fildes are assistant engineers of the Pennsylvania Railroad.

## Train Robbery Near Joliet

Northbound passenger train No. 6, of the Chicago & Alton, was boarded by robbers at Joliet, Ill., on the evening of April 6 and, subduing the express messenger, they took from his safe cash and securities of an estimated value of \$20,000. The conductor and two other men, coming into the car when the robbery was going on, were also subdued and about \$150 was taken from their pockets. The robbers left the train at a crossing-stop in the outskirts of Chicago. They had cut a signal wire about five miles from Joliet, setting an automatic block signal at stop; but as they had not completed the robbery they took no benefit from the stop. The engineer, finding that the stop was unnecessary, continued on his way.

## Freight Container Bureau

The Freight Container Bureau of the American Railway Association, 30 Vesey street, New York City, D. T. Lawrence, chairman, has issued the annual report of Edward Dahill, chief engineer, for the year 1926. Mr. Dahill and his six associate engineers have held during the year over 700 conferences with manufacturers, shippers, consignees and railroad officers and have made many hundred inspections of containers in the course of transportation. They have also made 82 public addresses, furnished much material for newspapers and have engaged in a variety of other activities. The studies and tests which have been made by the bureau and which have been noted in the *Railway Age* from time to time, have had to do with improvements in packing of a great variety of commodities—stoves, liquids in cans, chairs, etc., and with crates for various uses, and many other things.

The program of things intended to be

done during 1927 contains 22 articles, dealing with machinery, crockery, hardware, trunks, fresh fruits and other things. An appendix describes the work of the engineers among Florida citrus shippers a year ago, and another tells of field work among the peach shippers of Georgia, North Carolina and South Carolina.

## Union Safety Meeting at Youngstown

The railroads centering in Youngstown, Ohio, held, on Saturday evening, April 9, their second annual general safety rally, which was attended by employees of the six railroads entering the city together with members of their families. Music was furnished by the Pittsburgh & Lake Erie band and the Erie quartet. The principal addresses were by Charles E. Hill of the New York Central and Thomas H. Carrow of the Pennsylvania. The New York Central motion picture "Gambling With Death" was shown, and the meeting was followed by dancing. This meeting brought together some twelve or fifteen hundred persons; more, in fact, than could be comfortably accommodated in the hall. Those from the Pittsburgh & Lake Erie, numbering several hundred, came by special train from Pittsburgh and points between there and Youngstown.

## D. T. & I. Completes Nickel-Plating of Locomotives

All but two of the locomotives of the Detroit, Toledo & Ironton now have their cab-fixtures, number plates, piping, accessories, etc., nickel-plated, according to the D. T. & I. Railroad News. The two locomotives not so adorned are switch engines in the shops. The total of locomotives refinished is 73.

The policy of improving the appearance of the road's motive power was adopted in 1922 when a general program of rebuilding the road's power was agreed upon. Since that date locomotives shopped have not only been given a general mechanical overhauling but have been improved from a standpoint of appearance.

The changes involved, in addition to

nickel-plating parts and mechanical improvements as mentioned above, include high finish for boiler jackets, electric running board lights, pilot foot-board lights and cast aluminum cab floor.

### U. S. Chamber of Commerce Annual Meeting

The Fifteenth annual meeting of the Chamber of Commerce of the United States will be held in Washington, D. C., on May 2 to 5. Discussions will center around the major topic, "The New Business Era."

President Coolidge will speak, his talk to be delivered before a joint meeting of the National Chamber and the Pan-American Commercial Conference. The latter

conference will be attended by representatives from the Latin-American countries.

The Transportation and Communication session, which will be held at 1 p.m. on May 4, at the Willard Hotel, will be presided over by its chairman, A. L. Humphrey, president of the Westinghouse Air Brake Company. R. E. M. Cowie, president of the American Railway Express Company, will speak on "New Trends in Transportation." There will be a discussion on "The Fallacy of Government Ownership of Merchant Shipping" and the presentation of resolutions on the Integrity and Independence of the Interstate Commerce Commission; Postal Rates; Relations of Commercial Organizations of Aeronautical Development; and the City Traffic Problem. Col. A. B. Barber, man-

ager of the Transportation and Communication Department of the Chamber of Commerce of the United States is secretary of the session.

### Canadian Parliament Votes 29 Million for Transportation

The amount of \$22,500,000 for loans on behalf of the Canadian National for the current fiscal year, \$263,440 for the Dominion Railway Board for the year, \$5,130,000 toward completion of the Hudson Bay Railway and \$850,000 for a marine survey of the navigability of the waters leading to and through Hudson bay to the terminal of the Hudson Bay Railway were passed in the Canadian House of Commons late last week.

## Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 189 steam railways, including 14 switching and terminal companies

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
Average number of miles operated	238,078.84	237,385.91	59,461.10	59,489.57	5,555.51	5,550.44	39,464.11	39,143.57	133,598.12	133,202.33
Revenues:										
Freight	\$353,857,047	\$340,755,318	\$158,617,735	\$149,264,585	\$19,241,792	\$17,985,149	\$50,700,884	\$53,628,125	\$125,286,636	\$119,877,459
Passenger	74,218,359	78,626,086	36,115,072	37,280,806	1,580,455	1,696,638	11,745,814	14,126,491	24,777,018	25,522,151
Mail	7,457,389	7,587,660	2,763,411	2,790,694	191,488	209,960	1,134,190	1,159,087	3,368,300	3,427,919
Express	8,888,455	9,131,123	4,319,604	4,145,044	213,881	208,981	1,199,236	1,437,250	3,155,734	3,339,848
All other transportation	15,095,504	14,872,131	8,462,348	8,325,329	175,296	178,142	848,366	931,977	5,609,494	5,436,683
Incidental	8,796,355	9,186,556	4,528,065	4,557,787	370,103	361,218	1,156,023	1,504,613	2,742,164	2,762,938
Joint facility—Cr.	1,101,279	1,066,668	436,420	452,292	14,183	18,072	122,399	136,528	528,277	459,776
Joint facility—Dr.	419,954	379,576	132,545	133,570	1,719	1,856	29,916	33,774	255,774	210,376
Ry. operat'g revenues	468,994,434	460,845,966	215,110,110	206,682,967	21,795,479	20,656,304	66,876,996	72,890,297	165,211,849	160,616,398
Expenses:										
Maintenance of way and structures	58,669,436	58,893,321	25,126,724	25,639,527	2,908,352	2,719,350	9,326,524	9,746,961	21,307,836	20,787,483
Maintenance of equip't	99,038,864	101,002,458	47,788,392	48,297,201	4,863,639	4,744,994	12,925,023	13,349,999	33,461,810	34,610,264
Traffic	9,625,561	8,907,922	3,520,875	3,232,256	251,934	234,183	1,741,971	1,731,266	4,110,781	3,710,217
Transportation	175,398,176	173,865,620	84,564,989	83,067,858	5,983,755	5,897,913	23,700,840	25,635,356	61,148,592	59,264,493
Miscellaneous operat'ns	4,261,963	4,312,609	1,999,559	2,031,543	90,105	96,239	604,128	662,090	1,568,171	1,522,737
General	15,319,840	14,803,617	7,046,254	6,873,363	516,281	438,935	1,986,727	1,953,981	5,770,578	5,537,338
Transportation for investment—Cr.	840,985	781,885	168,579	66,589	33,963	12,198	141,999	148,450	496,444	554,648
Ry. operat'g expenses	361,472,855	361,003,662	169,878,214	169,075,159	14,580,103	14,119,416	50,143,214	52,931,203	126,871,324	124,877,884
Net revenue from railway operations	107,521,579	99,842,304	45,231,896	37,607,808	7,215,376	6,536,888	16,733,782	19,959,094	38,340,525	35,738,514
Railway tax accruals	28,644,908	28,302,980	10,768,628	10,514,612	1,773,238	1,524,556	3,912,431	4,256,024	12,230,611	12,007,788
Uncollectible ry. rev's	115,771	126,536	57,466	72,066	2,516	5,162	18,038	11,276	37,751	38,032
Ry. operating income	78,720,900	71,412,788	34,405,802	27,021,130	5,439,622	5,007,170	12,803,313	15,691,794	26,072,163	23,692,694
Equip'm't rents—Dr. bal.	6,763,497	6,110,616	3,876,051	3,264,828	4,788,077	4,638,261	929,649	1,879,915	2,435,874	1,604,134
Joint facility rent—Dr. balance	1,912,018	1,881,063	893,300	731,825	101,233	115,596	114,070	102,892	803,415	930,750
Net railway operating income	70,045,385	63,421,109	29,636,451	23,024,477	5,816,466	5,529,835	11,759,594	13,708,987	22,832,874	21,157,810
Ratio of expenses to revenues (per cent)	77.07	78.33	78.97	81.80	66.90	68.35	74.98	72.62	76.79	77.75

### FOR TWO MONTHS ENDED WITH FEBRUARY, 1927 AND 1926

Average number of miles operated	238,001.58	237,355.52	59,456.39	59,486.23	5,555.51	5,549.56	39,446.32	39,143.57	133,543.36	133,176.16
Revenues:										
Freight	711,757,407	688,833,704	317,532,988	299,510,560	39,832,872	37,113,145	100,941,918	106,737,764	253,449,629	245,472,235
Passenger	160,133,119	168,187,925	79,100,824	79,569,644	3,495,178	3,667,414	24,897,938	30,436,885	52,639,179	54,513,982
Mail	15,324,526	15,602,639	5,719,743	5,767,317	386,659	426,526	2,313,933	2,378,632	6,904,191	7,030,164
Express	17,686,060	18,944,051	8,429,430	8,687,165	411,029	426,858	2,311,753	2,978,533	6,533,848	6,851,495
All other transportation	30,646,359	30,429,747	17,115,526	17,124,199	363,649	364,921	1,718,503	1,913,716	11,448,681	11,026,911
Incidental	18,977,414	19,174,672	9,845,755	9,562,611	741,900	713,713	2,497,060	3,057,496	5,892,699	5,840,852
Joint facility—Cr.	2,337,419	2,148,499	960,971	876,096	25,073	31,658	292,248	279,251	1,059,127	961,494
Joint facility—Dr.	863,534	783,489	270,782	270,931	4,859	3,960	60,726	68,029	527,167	440,569
Ry. operat'g revenues	955,998,770	942,537,748	438,434,455	420,826,661	45,251,501	42,740,275	134,912,627	147,714,248	337,400,187	331,256,564
Expenses:										
Maintenance of way and structures	118,505,358	117,798,232	50,815,679	51,299,906	6,053,020	5,558,283	19,049,886	19,609,626	42,586,773	41,330,417
Maintenance of equip't	205,180,462	206,491,602	99,357,667	98,518,621	9,976,877	9,559,222	26,615,890	27,395,961	69,230,028	71,018,798
Traffic	19,476,924	17,927,164	7,149,120	6,502,721	493,843	474,836	3,593,811	3,465,016	8,240,150	7,484,591
Transportation	366,939,354	360,852,259	177,117,930	170,373,700	12,566,405	12,481,363	49,147,740	53,010,042	128,107,279	124,987,154
Miscellaneous operat'ns	9,071,288	8,887,652	4,308,108	4,165,247	178,418	193,391	1,235,586	1,355,512	3,349,176	3,173,502
General	31,613,275	29,985,438	14,624,274	13,798,705	1,064,024	908,386	4,113,461	3,931,528	11,811,516	11,346,819
Transportation for investment—Cr.	1,824,444	1,853,475	350,529	232,763	52,280	45,197	354,732	430,720	1,066,903	1,144,795
Ry. operat'g expenses	748,962,217	740,088,872	353,022,249	344,426,137	30,280,307	29,130,284	103,401,642	108,336,965	262,258,019	258,195,486
Net revenue from railway operations	207,036,553	202,448,876	85,412,206	76,400,524	14,971,194	13,609,991	31,510,985	39,377,283	75,142,168	73,061,078
Railway tax accruals	58,023,140	56,967,513	21,936,833	21,515,239	3,552,876	3,044,512	8,035,148	8,668,991	24,498,283	23,738,771
Uncollectible ry. rev's	218,707	237,297	87,020	122,741	4,068	8,155	32,458	22,343	95,161	84,058
Ry. operating income	148,794,706	145,244,066	63,388,353	54,762,544	11,414,250	10,557,324	23,443,379	30,685,949	50,548,724	49,238,249
Equip'm't rents—Dr. bal.	13,347,052	12,065,842	7,598,164	6,039,309	8,633,348	8,120,772	1,655,812	3,764,647	4,956,424	3,472,658
Joint facility rent—Dr. balance	3,823,575	3,904,367	1,774,486	1,545,608	195,512	220,936	176,871	207,525	1,676,706	1,930,298
Net railway operating income	131,624,079	129,273,857	54,015,703	47,177,627	12,082,086	11,547,160	21,610,696	26,713,777	43,915,594	43,835,293
Ratio of expenses to revenues (per cent)	78.34	78.52	80.52	81.85	66.92	68.16	76.64	73.34	77.73	77.94

a Includes \$2,992,002 sleeping and parlor car surcharge. b Includes \$3,054,580 sleeping and parlor car surcharge. c Includes \$6,330,514 sleeping and parlor car surcharge. d Deficit or other reverse items. e Includes \$6,454,881 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.



Figures, which some would characterize as "staggering," were given to the House by Charles A. Dunning, Minister of Railways and Canals, to show the magnitude of the work in completing the railway, but more particularly in providing terminal facilities on the bay and ensuring the navigability of the approaches to the terminal. There was little or no opposition to the Hudson Bay Railway for the reason that both of the main parties—Liberal and Conservative—are committed to it, and Hugh Guthrie, leader of the Conservatives, was obliged to get up and give it his blessing.

It was stated by Mr. Dunning that up to March 31, 1926, a total of \$15,245,889 was spent on the Hudson Bay Railway and \$6,242,114 on the terminals at Port Nelson. There is still some controversy as to whether Nelson or Fort Churchill would be the better terminal and Frederick Palmer, an English engineer, is now engaged for the Canadian government in making a report on this question. Mr. Dunning told the House the government hoped it would be Nelson as a good deal of money had already been spent there, and if Churchill were chosen 90 more miles of railway would have to be built. The estimated cost of completing the port development at Nelson was given at \$20,000,000.

### Progress in Abolition of Highway Crossings in New York

The grade crossing elimination act, passed by the legislature of New York in 1926 (Chapter 233) has now been in effect one year and the Public Service Commission has issued a statement reviewing its activities under the act. This law provided for the use of state money for crossing elimination to the amount of \$300,000,000, the authorities of the state being empowered, under suitable regulations, to advance moneys to be later repaid by cities, towns or railroads.

The Public Service Commission has in these 12 months considered 317 projects involving 658 crossings. In the cases of many crossings, in thinly settled communities, where the commission desired to take action, its course was blocked by the provision of the law that a town which would be unduly burdened by its share of the expense could refuse to take action. Of the 317 projects, 282 have already been considered at 430 public hearings, which

have been held at various points throughout the state. Orders have been issued by the commission for the elimination of 123 crossings, the estimated cost of which is \$9,101,450. In 85 projects covering 104 eliminations, the commission was unable to proceed because of the statutory debt limitation or other objections made by interested parties.

### British Columbia's Premier for Western Peace River Outlet

Premier John Oliver of British Columbia appeared recently at Ottawa before the House Committee on Railways and Canals to urge his province's "vital" interest in a western railway outlet from the Peace river valley. A short time ago the *Railway Age* published the engineers' report on two or three alternative projects for such a railway and it is that report which is being considered by the committee which, at the request of a member of Parliament from the Peace river country (Donald M. Kennedy), is calling witnesses from various parts of the Dominion on this question. British Columbia, said Premier Oliver, was interested not only in the volume of grain expected to come out of the valley but in the trade from coast cities to adjacent eastern territory. The coast looked forward to the time when its factories would supply the needs of the province of Alberta in manufactured goods.

He detailed efforts to secure an outlet from the valley and said the province was solely responsible for \$30,000,000 expended in construction work, and had suffered an additional loss of \$25,000,000 in interest and carrying charges.

"British Columbia has an absolutely just claim for sympathetic consideration of a western outlet from the Peace river valley," he declared after asking the committee to make sure that no action would be taken further to menace the investment of British Columbia in the Pacific Great Eastern Railway.

After a minute survey of present conditions Premier Oliver said he was convinced that with a view to the full development of the Peace river country an east and west line on both sides of the Peace river was necessary.

British Columbia, Premier Oliver said, viewed with alarm a proposal to connect the Edmonton, Dunvegan & British Colum-

bia by a north and south line with the Canadian National.

### The Travelers' Aid Society

The Travelers' Aid Society, maintaining agents at large railroad and steamship terminals in the principal cities, spent about \$1,000,000 during the year 1926 in a work which gave aid to 1,300,000 persons.

There are now 149 local societies and these count 1,640 co-operating representatives in communities where no organization has been started. They now have the National Association of Travelers' Aid Societies, headquarters 25 West 43rd street, New York City, and it is from the annual report of this national association that these facts are taken. The president of the National Association is Marcus L. Bell of New York City, vice-president of the Chicago, Rock Island & Pacific.

A summary of the work of these societies during the past year shows that wide varieties of human problems were included in the cases presented. There were 49,380 children traveling alone; 1,252 marriages had to be witnessed; 4,838 runaways were aided; 30,830 travelers, mostly immigrants, had difficulty with the language; and 4,987 lost their tickets or money and needed assistance. In a recent typical day 2,238 persons needed assistance, and these persons had relations with 815 cities and towns throughout the country. On this single day, 253 children, traveling alone, had to be helped. There were 44 instances of runaways; 18 had lost their money or ticket; and 198 were suffering from some physical disability.

The annual convention of the national association will be held at the Hotel Chamberlain, Des Moines, Iowa, on May 11, 12 and 13.

### Plea for Peace River Western Outlet

A strong plea for an early start in the building of a railway outlet from the Peace river region in northwestern Alberta to the Pacific coast was made by Donald M. Kennedy, member of Parliament for that district, in a speech in the House of Commons at Ottawa last week. The report of the House Committee on Railways, Canals and Telegraph Lines recognized the need of an outlet but thought that construction of the railway would have to await better assurances of a considerable traffic in and out of that region.

Mr. Kennedy, in a motion before the House, sought to alter this report to provide for immediate action, but through some technical oversight his motion was ruled out of order. Speaking on his motion he said, in part:

"What I want and what I think is in the best interests of the country, is to complete the survey of these routes and have a policy determined upon so that we shall know where to build our branch lines, and let me say that once we have built a mile of branch line that fits in with a policy for a permanent outlet we can be said to have commenced construction of the Peace river outlet. In that



Manchester Locomotive Has 2,500,000 Miles to Its Credit

This locomotive, built by the Manchester Locomotive Works in 1881, and delivered to the St. Louis & San Francisco at a cost of \$7,969.70 is still in everyday service on passenger trains between Hugo, Okla., and Hope, Ark., 121 miles. Up to the time it left the shops at Springfield recently it had run 2,463,750 miles. The engine weighs 88,000 lb., carries 150 lb. steam pressure and has cylinders 17 in. by 24 in.; total heating surface 1,242 sq. ft., grate area 17 sq. ft. The boiler was renewed in 1898 and the firebox again in 1913.

sense I say that the time is ripe for the commencement of that outlet, for we need at least 100 miles of branch lines in that country.

"What I ask at the present time is that a real study be made of the Monkman, the Peace and the Pine passes, and that a definite policy be laid down with regard to the permanent development of the Peace river country and an outlet to the Pacific coast. Then we can lay down the branch line mileage that is necessary to serve the Peace river country as it exists today, or will exist in the near future, in such a way that our branch line mileage will fit in properly and economically with that Pacific coast outlet when it is built \* \* \*

"The evidence of Premier Brownlee of Alberta, is based on grain shipments up to I think March 31 of this year, shows that about 130,000 tons has gone out of the Peace river country in the last crop year, from an area of only 270,000 acres of land, and we have about 2,000,000 acres of land of the very same type in the Peace river country in the area served by railways or that can be easily served by branch railways. Again 50,000 tons of grain produced on the Edmonton, Dunvegan and British Columbia railway in the years 1919 to 1923 about 150,000 revenue tons of other traffic and yet the engineers state in their economic study that only grain traffic is going to be considered in connection with this Peace river outlet. They seem to rule out altogether the development that would take place in the Peace river country as a result of the construction of additional branch line mileage and the ultimate completion of the outlet itself. I submit that the committee has not given proper consideration to the engineering and economic features, and that the House is not justified in adopting its report."

### Railway Revenues and Expenses for February

Class I railroads in February had a net railway operating income of \$70,045,386, which for that month was at the annual rate of 4.93 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In February, 1926, their net railway operating income was \$63,377,761, or 4.58 per cent.

Operating revenues amounted to \$468,994,433, compared with \$460,673,256 in February, 1926, or an increase of 1.8 per cent. Operating expenses totaled \$361,472,855, compared with \$360,899,940 in the same month in 1926, or an increase of two-tenths of one per cent. Taxes amounted to \$28,684,908, an increase of \$384,131, or 1.4 per cent. This brought the total tax bill of the Class I railroads for the first two months in 1927 to \$58,023,140, an increase of \$1,060,034 or nearly 2 per cent above that of the corresponding period in 1926.

Thirty-three Class I railroads operated at a loss in February, of which 13 were in the Eastern district, 3 in the Southern and 17 in the Western district.

For the first two months in 1927 the net railway operating income amounted to \$131,624,080, at the rate of 4.56 per cent, as compared with \$129,166,711, or 4.59 per

cent, in the corresponding months of last year.

Operating revenues for the first two months amounted to \$955,998,770, an increase of 1.5 per cent. Operating expenses were \$748,962,217, an increase of 1.2 per cent.

Net railway operating income by districts for the first two months was as follows:

		Per cent
New England Region.....	\$4,683,312	5.38
Great Lakes Region.....	21,631,947	4.86
Central Eastern Region....	27,700,445	5.20
Pacabontas Region.....	12,082,086	8.25
Total Eastern District....	66,097,790	5.46
Total Southern District....	21,610,697	4.52
Northwestern Region.....	5,120,141	1.60
Central Western Region....	24,741,079	4.42
Southwestern Region.....	14,054,373	4.44
Total Western District....	43,915,596	3.67
United States.....	\$131,624,080	4.56

The rate of return for the five years ending with February, 1927, has averaged 4.53 per cent per year.

The net for the Class I railroads in the Eastern district during the first two months totaled \$66,097,790, at the rate of 5.46 per cent. For the same period in 1926 their net was \$58,724,787, or 4.96 per cent. Operating revenues totaled \$483,685,957, an increase of 4.3 per cent, while operating expenses totaled \$383,302,556, an increase of 2.6 per cent. Class I railroads in the Eastern district for the month of February had a net railway operating income of \$35,452,917, compared with \$28,554,312 in February, 1926.

Class I railroads in the Southern district for the two months had a net of \$21,610,697, at the rate of 4.52 per cent. For the same period in 1926 the net amounted to \$26,606,681, or 5.82 per cent. Operating revenues of the two months amounted to \$134,912,627, a decrease of 8.4 per cent, while operating expenses totaled \$103,401,642, a decrease of 4.4 per cent. The net railway operating income of the Class I railroads in the Southern district in February amounted to \$11,759,595, while in the same month in 1926 it was \$13,665,639.

Class I railroads in the Western district for the two months had a net of \$43,915,596, or 3.67 per cent. For the first two months in 1926, they had a net of \$43,835,243, or 3.73 per cent. Operating revenues amounted to \$337,400,186, an increase of 1.9 per cent, while operating expenses totaled \$262,258,019, an increase of 1.6 per cent. For February, the net of the Class I railroads in the Western district amounted to \$22,832,874. The net railway operating income of the same roads in February, 1926, totaled \$21,157,810.

The summary follows:

Class I Railroads—United States			
Month of February			
	1927	1926	
Total operating revenues.....	\$468,994,433	\$460,673,256	
Total operating expenses.....	361,472,855	360,899,940	
Taxes.....	28,684,908	28,300,777	
Net railway operating income.....	70,045,386	63,377,761	
Operating ratio—per cent.....	77.07	78.34	
Rate of return on property investment, per cent.....	4.93	4.58	
Two Months Ended February 28			
Total operating revenues.....	\$955,998,770	\$942,175,286	
Total operating expenses.....	748,962,217	739,380,413	
Taxes.....	58,023,140	56,963,106	
Net railway operating income.....	131,624,080	129,166,711	
Operating ratio—per cent.....	78.34	78.53	
Rate of return on property investment, per cent.....	4.56	4.59	

## Traffic

The "Maple Leaf" is the name selected for the new train to be established between Chicago and Toronto on May 15 by the Canadian National and the Grand Trunk Western. It will leave Chicago at 9:05 A.M. and arrive at Toronto at 10:45 P.M. Westbound it will leave Toronto at 9 P.M. and arrive at Chicago at 10:15 A.M.

The Supreme Court of the United States, in a decision rendered on April 11, sustained an order of the Interstate Commerce Commission establishing, under the Panama canal act, rail-and-water and rail-water-rail rates on cotton via routes from Oklahoma, via Galveston, to New England points, which were based on a differential under the rail rates.

### The "Cascade Limited"

The Southern Pacific's new extra-fare passenger train between Portland, Ore., and San Francisco, Cal., via the Natron cut-off, which goes into service on April 17 (see *Railway Age*, March 26, page 1007) will be known as the "Cascade Limited." The new train will effect a reduction in time, as compared with the best train via Roseburg, of 3½ hours southbound and 3 hours 25 min. northbound. As between Los Angeles and Portland the time will be reduced 6 hours 55 min. northbound and 7 hours 35 min. southbound.

### New York City Passenger Traffic

The New York State Transit Commission, using data secured from the different railroads, reports the total number of passengers carried by the railroads to and from New York City (Manhattan) in the year 1926, as 248,138,573. Deducting the season ticket passengers from the gross number, and dividing this by two, to represent round trips, the average daily number of visitors, coming to New York, is estimated at 129,303. The totals by the different roads (not counting local ferry passengers) are given as follows:

	1926	1925
Baltimore & Ohio.....	500,000	575,000
Central of New Jersey....	16,137,473	15,935,303
Delaware, Lack. & W....	22,398,500	22,465,970
Erie.....	31,719,290	32,293,140
Lehigh Valley.....	719,004	933,153
Long Island.....	70,744,844	67,128,993
N. Y. N. H. & H.....	18,180,068	18,717,587
New York Central.....	37,876,232	35,392,861
New York, O. & W.....	532,621	549,804
N. Y., Westchester & B.	7,390,724	6,628,298
Pennsylvania.....	41,939,817	41,280,389
Total.....	248,138,573	241,900,498

### Complaint Against N. P. Not Settled

The Department of Justice has announced that the United States district court for the eastern district of Washington has dismissed the petition filed by the Government against the Northern Pacific, et al, which alleged that the railway com-



pany was granting concessions to and practicing discriminations in favor of 21 of its shippers who occupy railroad land for business sites. It was alleged that the rentals were substantially less than the reasonable rental value of the respective plots of land.

The court in dismissing the petition pointed out that under the terms of the leases a readjustment of the rentals fell due July 1, 1926. On that date the rentals attacked became ineffective and since they were not readjusted before the decision was rendered but were left without adjustment because this suit was pending, there were no rentals effective upon which the court could enter a decree.

The petition was dismissed without prejudice to the right of the government to institute a new proceeding, after the rentals have been readjusted.

### Cotton Rates to Gulf Ports

Upon rehearing, the Interstate Commerce Commission has rendered a decision that the relationship between interstate rates on cotton for city deliveries and shipside deliveries at Texas and Louisiana ports is unduly preferential of warehouses and compresses located on the water front at such ports, and shippers using such facilities, and unduly prejudicial to warehouses and compresses located at interior points and back from the water front at ports, and shippers using such facilities. The commission finds that a fair and reasonable basis for equalizing the rates will be to increase the city delivery rates 1 cent per 100 lb. and reduce the shipside rates, exclusive of wharf or pier terminal charges equivalent to 2 cents per 100 lb., to the basis of the increased city-delivery rates. An exception is made, however, that this finding should not be construed as condemning the practice of the lines serving New Orleans of maintaining that port on a parity with Galveston and Houston in the matter of export rates on cotton from Oklahoma and northern Texas. The regulations and practices pertaining to the concentration and compression of cotton at interior points was found not to result in undue prejudice.

### Fast Freight on the F. E. C.

The Florida East Coast announces that with the completion of its second main track and other extensive improvements, the movement of through freight has been greatly expedited. Freight leaving Jacksonville, Fla., at 1:30 p.m. is placed for delivery in Miami on the following morning; an average of about 20 miles an hour for the 366 miles. From yard to yard, the actual average performance of the trains for three months has been 18 hours, 44 minutes. For the same period, the time from Jacksonville to Key West has been 29 hours, 29 minutes. Package cars are now run direct to West Palm Beach and Miami from the more important centers in northern states. Package cars are also run through to Cuba, from Chicago, St. Louis, Cincinnati and Atlanta. Three car ferries are in operation between Key West and Havana. The movement of freight through to Havana without transfer has

resulted in a marked increase in the volume of this traffic. Lard is now sent from northern cities to Havana in tank cars, with a great saving in packing expense. Perishable fruits are moving in large quantities under refrigeration from shipping points in the temperate zone and delivered in Cuba in first-class condition.

### Canal Traffic for February

During the month of February, 1927, 449 commercial vessels and 28 small launches passed through the Panama Canal. Tolls on the commercial vessels aggregated \$1,994,860, and on the launches \$142, or a total tolls collection of \$1,995,003.

The daily average number of transits of seagoing vessels for the month was 16.03, and the daily average tolls collection \$71.245. The average amount of tolls paid by each of the commercial transits was \$4.442, as compared with \$4.480 for the month of January, 1927.

The daily average number of transits was the highest for any month since March, 1926, when the average was 16.32. The daily average tolls collection was the highest for any month since January, 1924, when the average was \$71.511.

Traffic for the past month established a record for February, both in number of transits and in amount of tolls collected. The largest February traffic heretofore was 424 transits in 1926, and \$1,964,155 in tolls in 1924.

Traffic from the Atlantic to the Pacific was considerably heavier than in the opposite direction, there being 200 transits from the Pacific to the Atlantic and 249 from the Atlantic to the Pacific during the month.

### Class Rate Hearing Resumed

Hearings before Commissioner Frank McManamy and Assistant Chief Examiner W. H. Wagner, of the Interstate Commerce Commission on the application of western carriers for a readjustment of class freight rates, I. C. C. Docket 17,000, Ex Parte 87, Sub. 1, were resumed at Kansas City, Mo., on April 7. The testimony of witnesses for the carriers dealt with the expense of operation, revenues and density of traffic. The tendency of retail merchants to conduct business with smaller stocks on hand; frequent turnover of merchandise and more numerous jobbing houses has led to smaller shipments, for which expeditious service is demanded.

Fairman R. Dick, a member of the firm of Roosevelt & Son, New York, represented a committee of security holders and testified that if the present trend of earnings and interest payments of western trunk line railroads should continue a few more years, all railroads in the territory will be bankrupt. The large insurance companies are reluctant to buy bonds of roads in the western territory because the earnings are much lower than those of carriers in other sections of the country. The western trunk line territory, he said, was financially able to pay the railroads a fair return on the investment. He introduced statistics showing the wealth of various sections. John W. Stedman, vice-president of the Prudential Life Insurance Company, also was a witness.

### Increased Business Forecast in Mid-West Territory

The reports of commodity committees of the Mid-West Shippers' Advisory Board which have been sent to the executive committee owing to the omission of the regular quarterly meeting of the board in April, indicate that of the 32 principal lines of agriculture and industry, 13 lines expect increased business in the next three months as compared with the corresponding months in 1926; and 14 lines expect no change. Five lines anticipate that their business during the next 90 days will be below that done last year. The acid and chemical industry and brick and clay products expect 10 per cent increase; cement manufacturers 8 per cent and mineral waters 10 per cent; the lumber industry 3 per cent, and paper, paper boards and pulp 21 per cent.

The movement of sand, gravel and crushed stone will be 15 per cent greater than last year.

The following industries expect that their business will be approximately the same as in the second quarter of 1926: Agricultural implements; concrete products; confectionery; corn products; dairy products; fresh fruits and vegetables; furniture; grain products; iron and steel; livestock; machinery; scrap iron; and waste material.

### Hearings in Grain Rate Investigation

The Interstate Commerce Commission has assigned its general investigation of rates on grain and grain products within the western district and for export, and part 7 of its rate structure investigation, together with 14 separate formal complaints involving grain rates, for hearing beginning on May 9 at Dallas, Tex., before Commissioner Meyer and Examiners Mackley and Hall. Further assignments will be made at the conclusion of the Dallas hearing. The commission has also announced a plan of procedure for this investigation.

The carriers will be heard first at Dallas and the testimony concerning the intraterritorial adjustment in the southwest, that is, Oklahoma, Arkansas, Texas, eastern New Mexico, Louisiana west of the Mississippi River, and Mississippi River crossings, Memphis to New Orleans, inclusive, will be completed at Dallas. The interterritorial adjustment between southwestern territory, on the one hand, and western trunk line territory and other points in the western district, on the other, may be heard at Dallas or Kansas City, as the parties may prefer.

The present inquiry covers "the rates on grain and grain products between points within the western district and the state of Illinois (including both banks of rivers on the boundary of the territory just described); rates on grain and grain products from the western district and the state of Illinois, when for export through any ports of the United States, including points on the Rio Grande River; and ex-lake rates on grain and grain products when for export." The petitions of the carriers for the exclusion of western trunk line and Illinois territories, in-

cluding Illinois, southern Wisconsin and west-bank Mississippi River points, from the scope of the inquiry have been denied.

The issues arise under the Hoch-Smith resolution as well as under the interstate commerce act, and include the reasonableness of the rates on grain and grain products *per se* and in their relation to the rates on other traffic; the relation of markets; the relation between the rates on wheat and on coarse grains; the relation between the rates on grain and on grain products; and a general review of the rates, regulations and practices, including transit, affecting grain and grain products.

No cases already decided have been reopened, the commission's notice says, but this is not to be construed as indicating that conclusions different from those reached in such cases may not be determined upon in the pending proceeding.

### Closing Arguments in Canadian Rate Case

Final argument on the evidence already submitted to the Dominion Railway Board at Ottawa in the general equalization of rates case was begun last week and will be concluded in a few days. A feature of last week's argument was the case presented by H. J. Symington, of Winnipeg, for the province of Manitoba, who dealt with the influence of United States competition on the freight rates structure governing the Canadian roads.

If the rates between Fort William and Winnipeg are to be raised to the point called for by the Regina Board of Trade, counsel contended one of two things must happen.

Either the United States competing lines would leave their rates unchanged, in which event they would take business away from the Canadian lines, or they would raise the rates to match the increase north of the line, and that would mean that a considerable sum would be taken out of the pockets of Canadian consumers by order of the railway board.

Mr. Symington opened with an expression of the opinion that the present case was entirely different to any of the rates cases which had previously been before the Board. Earlier cases had always dealt with some distinct issue affecting a particular locality or class of traffic, and with well-defined and natural territorial conditions and limitations, but the present case dealt with the entire Dominion, and included the disposal of some sixty or seventy different complaints, which, if granted to any great extent, would bring about, not an adjustment of rates, but a complete revolution in all rate-making theories which have obtained in the past.

He maintained that the functions of the board was rather to regulate than to make the rates.

W. H. McEwen, counsel for the province of Saskatchewan which is asking for certain adjustments in rates, claimed to show that railway statistics revealed a condition entirely favorable to the western sections, that of the whole system 64 per cent of the mileage was west of Fort William, and only 36 per cent east of that point, and that despite this, the total cost

of maintenance in the west was less by \$600,000; the transportation cost was but very little higher and the same favorable comparison was maintained in the cost of train dispatching, yard operations, fuel, and a number of other items. Not only was the western mileage double that of the east, but the density of traffic was also double.

The load per train was greater in the west in spite of the alleged handicap of the mountain haul, for while an average load for an eastern freight train was 398 to 447 tons in the west, it was 587 to 628 tons. The average tons of revenue freight per car west was 25 to 27 tons, and east 20 to 23 tons. An average train east contained 28 to 29 cars, but in the west a train was made up of 36 to 39 cars.

Mr. McEwen made special reference to the complaint of the live stock interests of the west that they were being discriminated against. They petitioned for an equalizing rate on the basis of the eastern rates. Rates had increased for live stock export since 1918; the ocean rates had been substantially reduced, and if the railway rate were proportionately reduced there would be a great fillip given to the live stock interests.

His clients, continued Mr. McEwen, did not favor the proposal to order a blanket rate on meat products as they could not admit any relation between live stock and dead meats and other packing house products and they did not want the situation further complicated. Counsel called attention to the fact that the witnesses called by the railways were unable to give any reason for the higher western rates on live stock except that it was in keeping with the traditional necessity of higher rates generally; he expressed the belief that this aged fallacy would not be able to survive the evidence which this enquiry had brought out.

Mr. McEwen dealt at some length with the claim that water competition affected eastern rates, and declared that no evidence had been submitted to show that there was any substantial competition in this direction. He suggested that motor competition was rapidly becoming a serious factor not only in the east but very noticeable in the west.



P. R. R. Train at Englewood (Chicago)

## Foreign

### Contract Let for Electrification in India

A contract was recently awarded to British Insulated Cables Ltd., of Prescott, England, by the Great Indian Peninsula Railway, for the electrification of 334 miles of track. The line to be electrified extends from Kalyan to Igatpuri in a northerly direction and from Kalyan to Poona in a southerly direction, together with sidings, storage yards, etc. The line to Poona includes a particularly mountainous region known as the "Ghats" and involves about four miles of tunnels. Power will be delivered to substations at 120,000-volts where it will be converted to 1,500-volt direct current. The total section of copper for each track will be one square inch, divided into three parts, a .5 square-inch main catenary, a .2 square-inch auxiliary catenary and a .3 square-inch contact wire. The main catenary will be supported at 220-ft. intervals by double porcelain disc insulators of a ball and socket pattern and the contact wire will be suspended by loop type drops from the auxiliary catenary. At intervals of approximately one mile, provision will be made for tensioning the line.

### Progress on Australian North-South Line

The first sod has been turned at Oodnadatta, Australia, for the extension of the railway from its present terminus to Alice Springs, in approximately the geographical center of the Commonwealth, according to advices to the Department of Commerce from Trade Commissioner E. G. Babbitt, Sydney. This section forms an additional link in the railway route planned to connect Darwin on the North coast with Adelaide in the south, and it is believed in Australia, will probably be a considerable factor in the settlement and development of the now practically uninhabited center of the island continent.

The railway from Port Augusta to Oodnadatta, about 478 miles, has been in use for many years, the final section having been opened in 1891. The new line will be approximately 291 miles in length, to be completed by June 30, 1929, at an estimated cost, exclusive of rolling stock, of £1,700,000.

Contracts have been let for rolling stock, engines and cars, all to be manufactured in Australian shops. The line will be standard gage, and the agreement between the Commonwealth and South Australia provides for the building of a direct connecting line, of the same gage, between Port Augusta and Adelaide.

The present railway from Port Augusta to Oodnadatta is given a valuation of £2,400,000. The loss on this line last year, including interest, was £205,038, and the new extension will for a long time show a considerable annual deficit. The outlay and the inevitable losses are considered



justifiable, however, in view of the ultimate benefit of the rail connection between the north and south Australia.

### Railway Wages in Great Britain

The following tabulation, compiled by the Bureau of Labor Statistics, gives in American monetary equivalents statistics of the weekly wage rates of various classes of railway employees in Great Britain, as of January 1, 1926:

#### Railway Service, Standard Rates of Wages, Inclusive Sliding-Scale Bonus

Shunters (passenger and freight):	
Class 1 .....	\$15.82
Class 2 .....	14.60
Class 3 .....	13.38
Class 4 .....	12.17
Engine drivers:	
First and second years .....	17.52
Third and fourth years .....	18.98
Fifth year .....	20.44
Sixth year .....	21.90
Firemen:	
First and second years .....	13.87
Third and fourth years .....	15.33
Fifth to tenth year .....	16.06
Eleventh year .....	17.52
Station foremen:	
Class 1 .....	15.82
Class 2 .....	14.11
Yard foremen:	
Class 1 .....	18.25
Class 2 .....	17.03
Porters (grade 1) .....	12.17
Porters (grade 2) .....	11.19
Ticket collectors:	
Class 1 .....	14.11
Class 2 .....	13.14
Guards (passenger and freight):	
First and second years .....	12.17
Third and fourth years .....	13.38
Fifth year .....	14.60
Sixth year .....	15.82

### Swedish Company Will Build Railways in Turkey

Two railway lines will be constructed in Turkey by the Swedish company, Nydqvist & Holm, in co-operation with a Danish firm within the next five years, according to reports in Sweden transmitted by Consul K. deG. McVitty, Stockholm, and made public by the Department of Commerce.

The first line, from Eregli to a point 11 miles east of Angora, will be 360 miles long and will be ready in five years. The other line will be approximately 310 miles long and will run from Diarbekir via Malatia and Marsch to a point east of Adana on the Bagdad Railway. The second line will be ready six months after the first has been opened. Payment for the work will be made in 10 years, according to the reports.

The Swedish firm will deliver 100 locomotives and about 1,500 railway cars besides planning, managing and supervising the construction of the lines.

The projected routes run through districts containing forests and mines. In this connection the Swedish press reports that two representatives of the Turkish government recently visited Sweden to conclude negotiations regarding the rail lines and to study Swedish forestry and lumbering methods.

## Locomotives

THE CHICAGO, SOUTH SHORE & SOUTH BEND has ordered two electric locomotives from the Westinghouse Electric & Manufacturing Corporation.

THE NEW YORK CENTRAL is now inquiring for 30, 4-6-4 type locomotives, 30, 4-6-2 type and 6 heavy type eight-wheel switching locomotives. In the *Railway Age* of April 2, this company was reported as inquiring for 36 locomotives.

THE BANGOR & AROOSTOOK has ordered five Pacific type passenger locomotives from the American Locomotive Company. In the *Railway Age* of February 5, it was reported that this company had under consideration the question of buying some passenger locomotives.

## Freight Cars

THE GEORGIA & FLORIDA contemplates buying about 80 box cars.

ALASKA RAILROAD.—See United States Department of the Interior.

THE PENNSYLVANIA recently placed an order for 50 cabin cars to be built at its Altoona works.

THE BOSTON & MAINE has ordered six air dump cars of 30 cu. yd. capacity from the Magor Car Corporation.

THE UNITED STATES DEPARTMENT OF THE INTERIOR, Washington, D. C., is inquiring for 10 hopper dump cars of 50 tons' capacity, for service on the Alaska Railroad.

THE WESTERN MARYLAND will build 1,000 hopper cars of 55 tons' capacity in its shops at Ridgely, W. Va. The railroad has already bought the fabricated steel from the car builder for this work.

## Passenger Cars

THE NEW YORK, NEW HAVEN & HARTFORD is inquiring for 20 baggage cars.

THE OAHU RAILWAY COMPANY has ordered two single unit power plants for rail motor cars from the Railway Motors Corporation.

THE LEHIGH VALLEY has ordered one combination passenger and baggage gasoline-electric rail motor car from the J. G. Brill Company.

THE DENVER & RIO GRANDE WESTERN has ordered one double unit power plant for a rail motor car from the Railway Motors Corporation.

THE CHICAGO, BURLINGTON & QUINCY has ordered 2, 65-ft. baggage and mail cars, 2, 65-ft. combination passenger, baggage and mail cars and 7, 75-ft. combination passenger, baggage and mail gasoline

electric rail motor cars from the Electro-Motive Company.

## Machinery and Tools

THE MISSOURI-KANSAS-TEXAS, it is understood, will buy about 60 machine tools.

THE GULF COAST LINES have ordered a 100-ton bushing press from the Niles-Bement-Pond Company.

THE LOUISVILLE & HENDERSON has ordered one locomotive ditcher crane from the American Hoist & Derrick Company.

THE SOUTHERN PACIFIC has ordered one 16-in. geared head Pratt & Whitney lathe from the Niles-Bement-Pond Company.

THE ST. LOUIS-SAN FRANCISCO has ordered a combination journal turning and axle lathe from the Niles-Bement-Pond Company.

## Iron and Steel

THE READING has ordered 150 tons of steel from the Shoemaker Bridge Company.

THE BALTIMORE & OHIO has ordered 125 tons of steel for a bridge from the Bethlehem Steel Company.

THE NORFOLK & WESTERN has ordered 125 tons of steel for a crane runway, from the Bethlehem Steel Company.

THE SOUTHERN RAILWAY has ordered 600 tons of steel for bridges from the Virginia Bridge & Iron Company.

THE PENNSYLVANIA has ordered 275 tons of steel for a pier at Philadelphia, Pa., from the American Bridge Company.

## Signaling

THE NEW YORK CENTRAL has ordered from the Union Switch & Signal Company, for use on the Mohawk Division, 30 color-light signals.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company, 63 locomotive equipments for coded continuous automatic train stops, to be used on locomotives which are run over the New York & Long Branch.

THE DELAWARE & HUDSON has ordered from the General Railway Signal Company 100 intermittent inductive automatic train-control equipments and 203 inductors, preparatory to installing automatic train control in its line between Albany, N. Y., and Whitehall, 78 miles. This installation, with that heretofore made, will complete automatic train control throughout the line from Albany, N. Y., northward to Rouse's Point, N. Y., 191 miles.

## Supply Trade

**A. P. Sweetey**, formerly assistant secretary of the Mechanical division of the American Railway Association, has become affiliated with **Batchelder & Co.**, Chicago.

**J. H. Gleason**, sales manager of the Chicago district of the **Graybar Electric Company**, has assumed charge of the railroad relations of the Chicago district, which work was formerly handled by **George Hull Porter**, deceased.

**Mudge & Co.**, Chicago, has awarded contracts for an addition to its manufacturing plant at Chicago. When the extension now under construction is completed, the plant will have double the productive capacity of the present plant.

**A. P. Hagar**, marine engineer of the **Safety Car Heating & Lighting Company**, with headquarters at New York, has been appointed representative, with the same headquarters, reporting to the manager of the northeastern district sales office.

The Cleveland (Ohio) district offices of the **Combustion Engineering Corporation**, **Ladd Water Tube Boiler Company** and the **Heine Boiler Company** have been consolidated and will be located at 1107 Guardian building. **Frank Henderson** is Cleveland district manager of these three associated companies.

The **R. H. Beaumont Company**, Philadelphia, Pa., has taken over the business of the **American Manufacturing & Engineering Company**, of Kalamazoo, Mich., and products formerly manufactured by this company, including the American slack line cableway excavator, will now be manufactured by the R. H. Beaumont Company. **S. O. Nafziger**, president of the American Manufacturing & Engineering Company, will be associated with the R. H. Beaumont Company.

**Edward C. Brown**, managing director of the local branch at Buenos Aires, Argentina, of the **Dearborn Chemical Company**, has been awarded a gold medal by the Institution of Locomotive Engineers for a technical paper which he prepared and presented before the local branch of that organization on the subject "Boiler Feedwaters and Preservation of Boilers." The award was made for the best paper presented before any branch of that institution during 1925. The Institution of Locomotive Engineers is a British organization which was founded in 1911 and incorporated in 1925 with 1,190 members located in 39 different countries throughout the world. Each year the institution awards a gold medal for the best paper presented, a silver and gold medal for the paper adjudged second in merit, and a silver medal for the third. The

second award went to the author of a paper presented in Milan, Italy.

**J. G. Carruthers**, who has been elected vice-president of the **Otis Steel Company**, Cleveland, Ohio, was born in Covington, Ky., on February 9, 1878, and entered business in 1897 with the **Columbus Bridge Company**, Columbus, Ohio, of which he later became secretary. When this company was taken over by the American Bridge Company he was appointed accountant of the Columbus plant. He resigned in August, 1901, to become assistant manager of sales of the **Cambria Steel Company** at Cincinnati, Ohio, which position he held until 1908. During this period he was also associated with **J. L. Adams & Company**, steel brokers. He entered



J. G. Carruthers

the employ of the **Carnegie Steel Company** in the latter year as assistant manager of sales at Cincinnati, and on September 1, 1917, was promoted to manager of sales of the Cincinnati district of the **Carnegie Steel Company**, the **Illinois Steel Company** and the **Tennessee Coal, Iron & Railroad Company**. On July 1, 1919, Mr. Carruthers was transferred to Chicago as manager of sales of the Chicago district for the **Illinois Steel Company**, which position he resigned on October 1, 1922, to become general manager of sales of the **Otis Steel Company**, which position he has held until his recent promotion.

**Charles Hansel**, consulting engineer, has organized **Charles Hansel, Incorporated**, with offices in Washington and New York, to serve as consulting specialists in engineering, legal and accounting matters involving railroads, utilities and industrial companies before the Interstate Commerce Commission and other branches of the government and the courts. The corporation is organized to obtain co-ordinating expert conclusions by bringing together into one

organization men experienced in engineering, accounting and legal problems involved in the administration, among others, of the interstate commerce act, state utility acts and the federal income tax laws, and to furnish technical service. The corporation does not engage in financing or construction and management. Mr. Hansel has served as locating and constructing engineer for the **Denver & Rio Grande**, chief engineer of the **Wabash**, consulting engineer of the **Railroad and Warehouse Commission of Illinois**, commissioner to Europe for the **World's Columbian Exposition**, consulting engineer for the **Indiana Harbor**, and for many years has been closely identified with railroad valuation work. In 1901 he was appointed a member of the board of review to adjudicate problems in connection with the valuation of the railroads of Michigan, and in 1911 he was appointed expert in charge of valuation of the railroad and canal properties of New Jersey. He has been consulting valuation engineer of the **Pennsylvania** system, chairman of the valuation committees of the **Reading**, **Central of New Jersey**, **Lehigh & New England** and **Morristown & Erie**, a member of the engineering committee of the **Presidents' conference committee**, and chairman of several committees representing the carriers in connection with valuation. **E. H. Abadie**, who has had extensive experience with electric utilities, and has been a consulting engineer specializing on engineering and accounting surveys and investigations, is managing director of the corporation. **J. Gilmore Korner, Jr.**, has resigned as chairman of the **United States Board of Tax Appeals** to become director of the income tax department of the new corporation.

### Burroughs Establishes Railroad Department

Announcement of a separate department for the study and development of mechanical accounting methods suitable for American railroads has been made by the public service division of the **Burroughs Adding Machine Company**, Detroit.

The personnel of the railroad department is composed chiefly of men versed in railroad accounting work. A majority were chosen because of their practical railroad experience.

The department is in charge of **A. S. Trew**, assisted by **R. E. Johnson**, formerly with the **Union Pacific**.

Included in the field force of the division are ten men: **W. J. Daller**, formerly auditor of revenue of the **Boston & Albany**, with district headquarters at Philadelphia; **J. P. Doughty**, formerly of the **Pere Marquette**, also at Philadelphia; **W. C. Curtin**, formerly of the **U. S. Railroad Administration**, at New York; **E. H. Chamberlin**, at Boston; **R. A. Burgeson**, of the **Illinois Central** and **J. T. Carney** and **W. F. Dunn**, both of the **U. S. Railroad Administration**, at Chicago; **G. W. Ruhl**, at St. Louis; **H. B. Lohmeyer**, at Cleveland, and **A. Knaff**, at Los Angeles. Offices of the field men are in conjunction with the **Burroughs** offices in the cities named.



## Construction

**ATCHISON, TOPEKA & SANTA FE.**—Ground has been acquired and plans are in the course of preparation for the construction of a general office building at Amarillo, Tex. Plans have been prepared for the construction of an addition to the enginehouse at Slaton, Tex., consisting of six stalls, 124 ft. in length, including engine pits, provided with water, air, steam and boiler washing lines. This company will also construct a frame enginehouse at Isom, Tex., 96 ft. by 208 ft. with concrete engine pits. This installation also includes two additional locomotive sidings.

**BALTIMORE & OHIO.**—A contract has been awarded to the Vang Construction Company, Cumberland, Md., for constructing a second main track and a concrete arch at Germantown, Md., at a total cost of about \$500,000. Another contract has been let to the James F. McCabe Company, Baltimore, Md., for the reconstruction of five bridges on the Ohio division, to cost about \$60,000. Also, a contract has been awarded to the Bates & Rogers Co., Chicago, for the reconstruction of two bridges at Taleski and West Junction, O., which it is estimated will cost around \$21,000.

**BOSTON & ALBANY.**—A contract has been let for a coaling and sanding plant at Worcester, Mass., to the Fairbanks, Morse & Co. of Chicago.

**CANADIAN NATIONAL.**—A contract has been awarded to N. McLeod, Ltd., Toronto, Ont., for the construction of a 300-ton reinforced concrete coaling station at Paris Junction, Ont.

**CHICAGO, ROCK ISLAND & PACIFIC.**—Construction of second main track between Earlsboro, Okla., and Lima, 15 miles, and additional passing tracks at Tracy, Okla., Tidmore, Seminole, Lima, Wewoka, Holdenville, Agua, Tecumseh Junction, El Reno, Stuart, Calvin, Shawnee, Harrah, Dickson, Oklahoma City, Council, Yukon and Banner has been authorized to handle the oil traffic in this section. Bids will be asked for grading while the laying of tracks will be done by company forces.

**GRAND TRUNK WESTERN.**—This company contemplates the construction of a freight classification yard of 4,000 cars' capacity on the line of its subsidiary, the Detroit, Grand Haven & Milwaukee, at Detroit, Mich. The yard will be operated in conjunction with the recently constructed yard at Pontiac, Mich., and in the future all freight will move into Detroit, from Pontiac, by means of transfer engines. Including a 20-stall enginehouse, a coaling station, a water station and facilities for light running repairs, the yard at Detroit will involve a total expenditure of about \$1,000,000. The yard will be constructed by company forces, although the enginehouse and other buildings will be built by contract.

**GREAT NORTHERN.**—This company, through a subsidiary, the Canadian Rockies Hotel Company, Ltd., has let a contract to Oland & Scott, Cardston, Alberta, for the construction of a four-story frame and stucco hotel in Waterton Lakes Park, Alberta, about ten miles north of Glacier National Park and the international boundary. The hotel, which will contain 90 guest rooms, will involve an expenditure of \$500,000, and will make up the first unit of a 250-room hotel.

**GULF, COLORADO & SANTA FE.**—The Interstate Commerce Commission has made public a report proposed by C. V. Burnside, assistant director of its Bureau of Finance, recommending that the commission authorize this company to build and operate an extension of 8 miles serving the industrial territory of West Dallas, Tex., but under conditions affecting the routing of traffic to and from such extension, so that the new line shall not be used "except where such use will clearly result in increased efficiency from a transportation standpoint." Such a limitation, the report says, would materially reduce the amount of traffic and revenue that would otherwise be diverted from the Texas & Pacific, which the new line would parallel for about 3 miles. It is stated that the record is inadequate for a finding as to all of the routes which would meet the test proposed, and it is recommended that the record should be held open to permit a definite determination of the routes or territories to be covered by the proviso, through conference or further hearing.

**KANSAS CITY, MEXICO & ORIENT.**—A contract has been let to John S. Cates for the construction of a passenger station at Ft. Stockton, Tex., at a cost of about \$30,000.

**LOUISVILLE & NASHVILLE.**—This road expects to let a contract soon for the construction of a freight house at Mobile, Ala.

**LOUISVILLE & NASHVILLE.**—The Interstate Commerce Commission has assigned this company's application for authority to construct a new line in Harlan county, Ky., and to operate under trackage rights over the Interstate Railroad, to connect its lines with those of the Carolina, Clinchfield & Ohio, for oral argument on April 18 before Division 4.

**NEW ORLEANS GREAT NORTHERN.**—This company plans the construction of a two-story brick passenger station and a one-story brick freight station with concrete platforms for each at Jackson, Miss.

**NEW YORK CENTRAL.**—A contract has been let to the Tucker Construction Company, Inc., New York, for the construction of a driveway and loading platform above the 43rd street driveway, and also a contract for alterations to the receiving room of the Hotel Commodore in New York. Another contract has been awarded to the

M. F. Kelly Building Corporation, New York, for the construction of elevator shaftways, platforms, canopies and overhead meat transfer tracks at packing houses in New York. This road has also awarded a contract to the O'Brien Bros., Inc., New York, for the construction of riprap walls along the Hudson river at Croton, N. Y. Also, a contract has been let to the Arthur McMullen Co., New York, for grading of temporary tracks at Dyckman street, New York.

**NEW YORK, NEW HAVEN & HARTFORD.**—This company has awarded to Henry R. Kent & Co., Rutherford, N. J., a contract for the construction of a central boiler plant at New Haven, Conn., to cost approximately \$500,000. The relocation of two main line tracks at Harlem river, New York City, to cost approximately \$250,000, in preparation for a projected yard extension, has been authorized.

**PENNSYLVANIA.**—A contract has been let to Daniel S. Bader Construction Company, Atlantic City, N. J., for raising and supporting tracks at the proposed under-grade bridge at Overbrook terrace, Collingwood, N. J.

**PITTSBURGH & WEST VIRGINIA.**—This company has filed an application with the Interstate Commerce Commission for a certificate authorizing the construction of a 38-mile extension from a point near Cochran's Mill, on the line of the West Side Belt, which it controls, to Connellsville, Pa. The application states the following reasons why such an extension would be in the public interest:

Such extension will traverse a portion of Pennsylvania now inaccessible to railroads and which is not now directly served by any railroad. Such extension will provide a means for the exchange of freight traffic between the Wheeling & Lake Erie and the Western Maryland, and will provide a new and practicable routing for freight between Baltimore, Toledo and lake ports, such routes embracing the Western Maryland from Baltimore to Connellsville, Pa., the proposed Connellsville extension from Connellsville to a connection with the West Side Belt near Cochran's Mill, the West Side Belt to Pittsburgh, the Pittsburgh & West Virginia to a connection with the Wheeling & Lake Erie at Pittsburgh Junction, O., and the Wheeling & Lake Erie to Toledo and other lake ports. Such extension will furnish applicant a non-competitive connection, which the applicant does not now possess, via the Western Maryland, to traffic territory east of Pittsburgh. Such extension will afford to the carriers which will be directly benefited thereby, namely, the Western Maryland, West Side Belt, the Pittsburgh & West Virginia and the Wheeling & Lake Erie, a larger traffic and consequent greater use of existing properties and equipment, a part of which is not now used to the fullest extent through lack of non-competitive connections. Such extension will give to the applicant and to the Wheeling & Lake Erie an opportunity for favorable connections to western territory, all of which are now denied, and traffic congestion between Pittsburgh and Connellsville over existing lines in times of heavy freight movement will be relieved.

**TEMISKAMING & NORTHERN ONTARIO.**—Announcement was made last week in Toronto by Premier Howard Ferguson that the Ontario government would spend \$2,500,000 this year on contemplated extensions of this line. Cost of the extension towards James Bay would approximate \$1,500,000 and the remainder would be spent in building the Swastika-Kirkland lake branch line into the Rouyn mining region in northwestern Quebec.

**TEXAS & PACIFIC.**—A contract has been let to the Austin Company, Cleveland, O., for the construction of buildings at the new freight terminal, yard and shops at

Fort Worth, Tex. Track laying will be done by company forces and approximately \$2,500,000 will be spent on the entire project during 1927. A contract for the construction of a brick combination freight and passenger station at Wills Point, Tex., has been awarded to F. A. Mote, Dallas, Tex., at a cost of about \$50,000.

TOLEDO, PEORIA & WESTERN.—The Interstate Commerce Commission has authorized this company to construct a line from its existing line at Iowa Junction, Ill., to a connection with the Atchison, Topeka & Santa Fe at Lomax, a distance of about one mile; estimated cost, \$64,030, of which half will be defrayed by the Santa Fe.

WABASH.—Bids will close on April 20 for the construction of a one-story brick and passenger station at Excelsior Springs, Mo., with outside dimensions of 24 ft. by 70 ft., estimated to cost about \$25,000.

#### Pere Marquette 1927 Program of Construction

The Pere Marquette has a large program of construction planned for this year. Approximately 128 miles of tracks will be ballasted at a cost of about \$307,000. Ditching and widening cuts and fills on the various divisions will be carried on at a cost of about \$162,500. For bridges, trestles and culverts at Thomaston, Ind., Wyoming (Grand Rapids), Mill Creek, Henry, Williamsburg, Comfort, Flint (Chevrolet Creek), Riverdale and Sidney, \$66,600 is provided in all.

Grade separations at Michigan Avenue and Miller Road, Detroit, will cost \$320,000 and the completion of the Schaefer Road work in Fordson, 1927 portion, will involve a further expenditure of \$260,000.

The miscellaneous building program, to cost about \$92,000, includes the following items: station and team tracks, Grand Haven, \$35,000; waiting room and platform, Bay View, \$13,500; concrete platform, Grand Rapids, \$7,000; and a storage building for fuses and torpedoes, Wyoming, \$700, all of the foregoing being on the Chicago-Petoskey division. Ten thousand dollars have been allocated to the Toledo-Ludington division for an ice house at Saginaw. Twenty thousand dollars are also assigned to this division for a new yard office at McGrew, Flint. On the Detroit-Canadian division there is a \$6,000 item for an incinerator at the Twelfth Street Round House, Detroit, and \$400 for a fuse and torpedo building at St. Thomas.

Shop and engine house expenditures will amount to \$190,500. A considerable part of this major item will be expended in Saginaw, the detailed outlays being as follows: Additions to machine shop, \$45,000; storehouse extensions and offices, \$80,000; forge shop remodeling, \$15,000; car repair shed, \$15,000; reclamation plant, \$8,000 and heating plant, \$5,000.

An outlay of \$90,000 for water plants and coaling stations is contemplated. For passing tracks and sidings, it is planned to lay out \$363,000 during the current season. The yard extension program forecasts an aggregate outlay of \$314,500, of which a considerable proportion will be spent in Detroit.

## Railway Finance

ANN ARBOR.—1926 Earnings.—As previously reported the annual report for 1926 shows net income after interest and other fixed charges of \$442,964 equivalent after allowance for 5 per cent dividends on the preferred stock to \$6.86 a share on the common. Net income in 1925 was \$459,679 or \$7.99 a share. Selected items from the income statement follow:

	1926	1925
Average mileage operated..	293.86	293.86
RAILWAY OPERATING REVENUES .....	\$5,882,293	\$5,867,692
Maintenance of way.....	\$626,365	\$615,119
Maintenance of equipment 1,219,934		1,171,277
Transportation .....	2,325,431	2,328,358
TOTAL OPERATING EXPENSES..	\$4,445,258	\$4,438,783
NET REVENUE FROM OPERATIONS .....	\$1,437,035	\$1,428,909
Railway tax accruals....	289,140	267,077
Railway operating income..	\$1,147,286	\$1,161,291
Hire of freight cars—Dr. bal. ....	203,569	210,557
Joint facility rents—Cr. bal. ....	74,342	74,179
NET RAILWAY OPERATING INCOME .....	\$969,493	\$1,028,837
Non-operating income.....	17,805	18,217
GROSS INCOME .....	\$987,298	\$1,047,054
Interest on funded debt..	442,985	491,894
TOTAL DEDUCTIONS FROM GROSS INCOME .....	\$564,334	\$587,375
NET INCOME .....	\$442,964	\$459,679

ALABAMA GREAT SOUTHERN.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$2,772,462 equivalent to \$12.36 a share on the combined preferred and ordinary stocks. Net income in 1925 was \$2,998,348 or \$13.37 a share. The preferred participates equally with the common stock after 6 per cent dividends on the latter. Selected items from the income statement follow:

	1926	1925
Average mileage operated	318.35	318.35
RAILWAY OPERATING REVENUES .....	10,599,163	10,433,271
Maintenance of way..	1,446,983	1,345,526
Maintenance of equipment .....	2,074,152	1,883,124
Transportation .....	3,190,294	3,100,422
TOTAL OPERATING EXPENSES .....	7,336,614	6,951,150
Operating ratio .....	69.22	66.62
NET REVENUE FROM OPERATIONS .....	3,262,549	3,482,122
Railway tax accruals..	773,201	717,973
Equipment rents, Cr..	401,235	413,061
Joint facility rents, Dr.	159,770	174,655
NET RAILWAY OPERATING INCOME .....	2,728,463	2,999,281
Non-operating income..	676,755	641,300
GROSS INCOME .....	3,405,218	3,640,581
Rent for leased roads	19,451	19,451
Interest on funded debt.	475,944	475,944
NET INCOME .....	2,772,462	2,998,348
Disposition of net income:		
Dividends on preferred stock .....	439,445	236,624
Dividends on ordinary stock .....	1,017,900	548,100
Surplus for year carried to profit and loss....	1,315,116	2,213,623

ATCHISON, TOPEKA & SANTA FE.—1926 Earnings.—Annual report for 1926 shows

net income, after interest and other fixed charges, of \$60,631,495, equivalent, after dividends on the preferred stock, to \$23.41 a share on the common. Net income in 1925 was \$46,157,934, or \$17.18 a share. See excerpts from annual report on adjacent pages.

BALTIMORE & OHIO.—Abandonment.—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon 4,807 ft. of its Rock Run branch in Perry County, Ohio, due to exhaustion of coal mines served.

BESSEMER & LAKE ERIE.—1926 Earnings.—Annual report for 1926 shows net income after interest and other fixed charges of \$5,759,259 as compared with \$4,700,681 in 1925. Selected items from the income statement follow:

	1926	1925
Average mileage operated	228.03	228.03
RAILWAY OPERATING REVENUES .....	16,972,124	15,546,685
Maintenance of way...	1,189,216	1,106,391
Maintenance of equipment .....	3,919,134	4,193,982
Transportation .....	4,131,058	4,066,829
TOTAL OPERATING EXPENSES .....	9,867,893	9,958,294
NET REVENUES FROM OPERATIONS .....	7,104,231	5,588,391
Railway tax accruals..	1,338,202	838,436
Railway operating income	5,764,880	4,742,663
Hire of freight cars, Cr. ....	456,036	524,309
Joint facility rents, Cr.	38,178	25,322
NET RAILWAY OPERATING INCOME .....	Not shown	
Non-operating income.	865,019	890,148
GROSS INCOME .....	6,629,899	5,632,811
Rent for leased roads.	5,967	5,967
Interest on funded debt .....	795,688	850,587
TOTAL DEDUCTIONS FROM GROSS INCOME .....	870,640	932,130
NET INCOME .....	5,759,259	4,700,681
Dividends .....	419,976	419,971
Surplus for year carried to profit and loss....	5,339,283	4,280,710

CAROLINA SOUTHERN.—Acquisition of Line.—This company which was incorporated on August 18, 1926; has been authorized to take over the line of the Wellington & Powellsville which was sold at a receiver's sale. The company operates a line from Ashokie to Windsor in Hertford and Bertie Counties, N. C., 22.55 miles. The line at present is narrow-gage and the new company purposes to change it to standard-gage and put in heavier rail.

CENTRAL INDIANA.—Abandonment.—The Interstate Commerce Commission has authorized this company which is owned jointly by the Pennsylvania and the Cleveland, Cincinnati, Chicago & St. Louis, to abandon its entire line which extends from Muncie, Ind., to Brazil, 127 miles. The company has not earned sufficient revenue to pay operating expenses and taxes and its territory is served by several other carriers.

(Continued on page 1231)



# Annual Reports

## Thirty-Second Annual Report of Central of Georgia Railway Company

### Report of the Board of Directors

Savannah, Georgia, March 17, 1927.

To the Stockholders:

The Board of Directors submits its report for the year ended December 31, 1926:

#### Income

Details are shown in Table 2.

"Railway Operating Revenues" increased \$1,595,960.88 (5.28%).

"Freight Revenue" increased \$1,626,271.20 (7.58%). The tons of revenue freight carried one mile were 2,149,644,659, an increase of 290,355,276 ton miles (15.62%). The average revenue per ton was \$2.04 as compared with \$2.12 for the previous year, and the average revenue per ton mile was 1.07 cents as compared with 1.15 cents for the previous year.

"Passenger Revenue" decreased \$191,900.04 (3.15%). Revenue passengers carried one mile were 187,016,372, a decrease of 5,467,497 (2.84%). Average revenue per passenger per mile was 3.16 cents as compared with 3.17 cents for the previous year.

"Mail Revenue" increased \$19,957.10 (4.14%).

"Express Revenue" increased \$103,453.66 (11.17%).

"Other Passenger Train," "Other Transportation," "Incidental," and "Joint Facility" revenues, increased \$38,178.96 (3.01%).

#### Railway Operating Expenses

"Railway Operating Expenses" increased \$1,035,056.49 (4.55%).

The decrease of \$166,895.30 (3.58%) in "Maintenance of Way and Structures" was due mainly to reduction in charges for retirements and incidental expenses in connection with revision of grade and line on Birmingham District.

The increase of \$307,319.71 (5.92%) in "Maintenance of Equipment" was due to increase in force because of increased business, and to increase in rates of pay. Charges to "Maintenance of Equipment" for depreciation were \$861,223.21, an increase of \$134,399.75 (18.49%). The average miles per serviceable locomotive were 36,139, an increase of 557 miles (1.57%). The average age of locomotives was 18.7 years, as compared with 18.5 for previous year.

"Traffic" expenses increased \$56,045.80 (6.40%).

"Transportation" expenses increased \$688,446.78 (6.28%) due to increased business, and to increase in rates of pay.

"Miscellaneous Operations" increased \$46,176.11 (23.79%) due to increased dining car service in through trains.

"General Expenses" increased \$81,396.89 (7.33%).

"Transportation for Investment—Credit" decreased \$22,566.50 (8.41%) due mainly to completion of additions and betterment work in connection with revision of grade and line on Birmingham District, and ballasting projects on Savannah and Augusta Districts.

#### Railway Tax Accruals

"Railway Tax Accruals" were \$1,519,851.76 as compared with \$1,339,921.16 last year, an increase of \$179,930.60 (13.43%). \$70,564.21 of this increase was in State, County, and Municipal taxes due to increase in assessed values and increased rates; \$109,366.39 was in Federal Income taxes due to increase in taxable income, and increased rate.

#### Uncollectible Railway Revenues

"Uncollectible Railway Revenues" amounted to \$9,300.69, as compared with \$9,363.31 last year, a decrease of \$62.62 (0.67%).

#### Equipment Rents—Net Debit

The decrease of \$187,266.45 (32.17%) in net rental paid for use of equipment was due chiefly to reduction in net amount paid for use of freight cars, brought about through the purchase of additional freight cars.

#### Joint Facility Rents—Net Debit

"Joint Facility Rents—Net Debit" increased \$82,755.37 (89.13%) due mainly to increased payments for use of the following facilities, because of a revision of contracts at these points:

Joint Freight Terminals—Montgomery, Ala.  
Joint Freight Terminals—Birmingham, Ala.

#### Non-Operating Income

The increase of \$313,197.31 (27.91%) in "Non-operating Income" was due mainly to the receipt of extra and deferred dividends, and interest from other companies; partly offset by decreased interest during construction and decreased rents from non-operating physical property.

#### Deductions From Gross Income

The increase of \$228,465.42 (6.56%) in "Deductions from Gross Income" was due mainly to the increase in equipment trust certificates and other funded debt.

#### Financial

##### Capital Stock:

There were no changes in capital stock.

##### Funded Debt:

During the year \$670,000 of equipment trust certificates and \$63,663.30 of equipment notes matured and were retired.

\$168,000 of Eatonton Branch Railroad First Mortgage 5% Gold Bonds matured on June 1, 1926, of which \$166,000 have been paid.

\$3,000,000 of Refunding and General Mortgage 5% Bonds, Series "C", were issued as of April 1, 1926, to reimburse the treasury for expenditures for additions and betterments made from current cash.

##### Other Indebtedness:

Non-negotiable debt to affiliated companies decreased \$250,000.

Loans and Bills Payable, \$131,921.46, represent deferred payments on six all-steel passenger train cars purchased from Pullman Car & Manufacturing Corporation.

##### Dividends:

During the year dividends Nos. 24 and 25 (total \$1,200,000) at the rate of six percent per annum were declared and paid.

#### Additions and Betterments—Expenditures

The net increase in investment in road, equipment, and improvements on leased railway property totaled \$7,247,680.04.

#### Physical Changes

The following includes some of the more important improvements during the year, the cost of which was wholly or in part charged to "Road and Equipment":

##### Additions and Betterments—Road:

118,405.2 miles of new steel rail were laid in main line tracks; 6,329 miles were relaid with one-hundred pound rail; 108,158.4 miles were relaid with ninety-pound rail; 2,497.7 miles were relaid with eighty-pound rail; and 1,420.1 miles of new main line tracks were laid with new ninety-pound rail. Of the new relaid rail 30,211.7 miles replaced rail of the same weight, and 86,773.4 miles replaced rail of lighter weight. 50,032.7 miles of main track were relaid with relay steel rail, replacing rail of lighter weight. 6,115.4 miles were relaid with relay steel rail, replacing rail of same weight. Total mileage of main track laid and relaid with new and relay steel rail was 174,553.3.

430,598 cross ties were renewed, being equivalent to 149.51 miles of continuous track, or 6.17 percent of all ties in track, including sidings.

Revision of grades and change of alignment on the Birmingham District, between Columbus, Ga., and Birmingham, Ala., mentioned in previous report, has been completed. Work was commenced in May, 1924, and new line finished for complete operation on September 22, 1926. The construction limits were between Phenix City, Ala., and just west of Sterretts, Ala., a distance of 122.75 miles. Also a fill-out yard was constructed at Dunavant, Ala.

The work consisted of the construction of 56.26 miles of main line on new location and 26.76 miles of main line raised or lowered on old location. The improvements reduced the maximum gradient eastbound from one and one-quarter percent to one-half of one percent and reduced the distance four and eight-tenths miles. The changes also eliminated eighty-nine curves, a total of 3,538 degrees of curvature; 1,044 feet of rise and fall; forty highway grade crossings; two railroad grade crossings, and 3,300 feet of pile and frame trestles.

7,484,777 cubic yards of material were removed by steam shovels and grading outfits—1,774,415 cubic yards of solid rock, 989,313 cubic yards of loose rock, and 4,721,049 cubic yards of common excavation. 22,367 lineal feet of cast iron and reinforced concrete pipe and reinforced concrete boxes were installed to provide suitable waterways. Three reinforced concrete overhead structures were erected; a viaduct 545 feet in length over the Southern Railway at Childersburg, Ala., an overhead bridge 127 feet in length over the A. B. & A. Ry., at Arkright, Ala., an overhead bridge eighty-two feet in length carrying a highway near Alexander City, Ala. Seventeen creosoted overhead highway bridges were erected, totaling 1,692 feet; five reinforced concrete underpasses, totaling 320 feet, and seven steel plate girder span bridges on concrete piers, totaling 2,770 feet, over

Little Sandy Creek, Big Sandy Creek, Chattasofkee Creek, Tallapoosa River, Hatchett Creek, Shirtee Creek, and an underpass near Jackson's Gap, Ala. There was a net increase of 13.41 miles in the passing and side track mileage due to the changes.

#### Additions and Betterments—Equipment:

Changes in equipment were as follows:

Locomotives: Under Equipment Trust "Q" three central type locomotives were received in 1925 and reported last year. In 1926 the remaining seven central type and five mountain type locomotives were received from Baldwin Locomotive Works. Two suburban engines were purchased from the Illinois Central Railroad. Ten mikado type and seven central type locomotives were received from the Illinois Central Railroad in exchange for tenallet type locomotives; the ten mikados had been under

lease from the Illinois Central since the early part of 1921. One small passenger engine was sold and one small passenger engine was scrapped, making a net increase of nine (9) locomotives, and an increase of 350,898 pounds in tractive power.

Freight Train Cars: Two thousand steel underframe ventilated box cars were received from Tennessee Coal, Iron and Railroad Company. Of these, nineteen hundred and twenty-seven were acquired under Equipment Trust "Q", and seventy-three replaced, under Equipment Trust "M", sleeping cars sold to The Pullman Company in 1925. Twenty steel underframe cabooses were built at the Company's Macon shops. Six hundred and seventy-nine box, flat and coal cars and ten cabooses were retired, making a net increase of one thousand three hundred and thirty-one freight train cars.

Passenger Train Cars: Five all steel open coaches and one all steel partition coach were purchased from the Pullman Car and Manufacturing Corporation. One wooden parlor car was sold, thereby disposing of all parlor cars. Three coaches were destroyed and retired, and one coach was converted into a roadway car. Six baggage and mail and four baggage and express cars were changed to roadway equipment.

Work Equipment: One steam ditcher, one wrecking crane, one coaling crane, one scale test car, and one tank car, were purchased from current cash. One tank car, one tank and tool car, and one miscellaneous roadway car, were built at company shops, Macon, Georgia. Fifty-six units were transferred from other classes. Thirty-nine units were retired, making a net increase of twenty-five units.

#### General

On September 15, 1926, Mr. Lawrence A. Downs, President of the Company, resigned to accept the Presidency of Illinois Central Railroad Company, and Mr. John J. Pelley was elected to fill the vacancy.

The Board of Directors takes this opportunity to express its appreciation of the integrity, efficiency, and united efforts displayed by your officers and employees in the discharge of their duties.

By order of the Board of Directors.

CHARLES H. MARKHAM,  
Chairman of the Board.

Table 2. Income Statement

	Year Ended December 31			
	1926	Percent of Total Op. Rev.	1925	Percent of Total Op. Rev. + Increase — Decrease
Average miles operated .....	1,915.27	....	1,920.38	.... — 5.11
Railway Operating Revenues.				
I. Transportation—				
Rail Line:				
101. Freight .....	\$23,078,804.36	72.52	\$21,452,533.16	70.97 + \$1,626,271.20
102. Passenger .....	5,907,478.35	18.56	6,099,378.39	20.18 — 191,900.04
103. Excess baggage .....	37,028.04	.12	39,289.85	.13 — 2,261.81
104. Sleeping car .....	.....	.....	39,404.05	.13 — 39,404.05
105. Parlor and chair car .....	.....	.....	2,692.32	.01 — 2,692.32
106. Mail .....	502,053.27	1.58	482,096.17	1.59 + 19,957.10
107. Express .....	1,029,949.80	3.24	926,496.14	3.07 + 103,453.66
108. Other passenger train .....	116,177.55	.36	23,300.18	.08 + 92,877.37
109. Milk .....	16,306.49	.05	16,319.44	.05 — 12.95
110. Switching .....	357,027.63	1.12	345,512.70	1.14 + 11,514.93
111. Special service train .....	21,833.50	.07	24,811.25	.08 — 2,977.75
Total .....	31,066,658.99	97.62	29,451,833.65	97.43 + 1,614,825.34
III. Incidental:				
131. Dining and buffet .....	196,133.24	.62	160,628.64	.53 + 35,504.60
132. Hotel and restaurant .....	5,708.76	.02	4,752.55	.02 + 956.21
133. Station, train and boat privileges .....	26,039.88	.08	27,889.36	.09 — 1,849.48
134. Parcel room .....	85.30	....	85.20	.... + .10
135. Storage — Freight .....	82,213.44	.26	96,840.43	.32 — 14,626.99
136. Storage — Baggage .....	1,032.62	....	1,098.80	.... — 66.18
137. Demurrage .....	119,621.66	.38	95,122.37	.32 + 24,499.29
141. Power .....	6,049.53	.02	5,206.09	.02 + 843.44
142. Rents of buildings and other property .....	4,742.42	.01	4,398.47	.01 + 343.95
143. Miscellaneous .....	259,921.38	.81	327,136.84	1.08 — 67,215.46
Total .....	701,548.23	2.20	723,158.75	2.39 — 21,610.52
IV. Joint Facility:				
151. Joint facility—Cr. ....	58,242.68	.18	55,128.82	.18 + 3,113.86
152. Joint facility—Dr. ....	1,080.61	....	712.81	.... — 367.80
Total .....	57,162.07	.18	54,416.01	.18 + 2,746.06
Total railway operating revenues	31,825,369.29	....	30,229,408.41	.... + 1,595,960.88
Railway Operating Expenses:				
201-280. Maintenance of way and structures	4,496,326.11	14.13	4,663,221.41	15.43 — 166,895.30
301-337. Maintenance of equipment .....	5,498,448.52	17.28	5,191,128.81	17.17 + 307,319.71
351-359. Traffic .....	931,545.49	2.93	875,499.69	2.90 + 56,045.80
371-420. Transportation—Rail line .....	11,659,307.83	36.63	10,970,861.05	36.29 + 688,446.78
441-446. Miscellaneous operations .....	240,236.34	.75	194,060.23	.64 + 46,176.11
451-462. General .....	1,192,509.54	3.75	1,111,112.65	3.68 + 81,396.89
471. Transportation for investment—Cr. ....	245,835.73	.77	268,402.23	.89 + 22,566.50
Total railway operating expenses	23,772,538.10	74.70	22,737,481.61	75.22 + 1,035,056.49
Net revenue from railway operations	8,052,831.19	25.30	7,491,926.80	24.78 + 560,904.39
532. Railway Tax Accruals .....	1,519,851.76	4.78	1,339,921.16	4.43 + 179,930.60
533. Uncollectible Railway Revenues .....	9,300.69	.03	9,363.31	.03 — 62.62
Railway operating income .....	\$6,523,678.74	20.49	\$6,142,642.33	20.32 + \$381,036.41

	1926	1925	+ Increase — Decrease
Railway operating income—brought forward .....	\$6,523,678.74	\$6,142,642.33	+ \$381,036.41
Additions to Railway Operating Income:			
504. Rent from locomotives .....	28,668.53	82,935.02	— 54,266.49
505. Rent from passenger-train cars .....	143,631.24	143,256.22	+ 375.02
507. Rent from work equipment .....	24,048.44	28,896.01	— 4,847.57
508. Joint facility rent income .....	103,790.10	106,870.92	— 3,080.82
Total additions to railway operating income .....	300,138.31	361,958.17	— 61,819.86
Deductions from Railway Operating Income:			
536. Hire of freight cars—Debit balance .....	366,757.94	621,898.40	— 255,140.46
537. Rent for locomotives .....	13,749.93	37,600.48	— 23,850.55
538. Rent for passenger-train cars .....	205,308.78	175,216.41	+ 30,092.37
540. Rent for work equipment .....	5,317.14	2,423.99	+ 2,893.15
541. Joint facility rents .....	279,391.78	199,717.23	+ 79,674.55
Total deductions from railway operating income .....	870,525.57	1,036,856.51	— 166,330.94
Net railway operating income	5,953,291.48	5,467,743.99	+ 485,547.49
Non-Operating Income:			
502. Revenues from miscellaneous operations .....	.....	34,282.50	— 34,282.50
509. Income from lease of road .....	45,329.64	45,299.64	+ 30.00
510. Miscellaneous rent income .....	106,908.74	105,767.73	+ 1,141.01
511. Miscellaneous non-operating physical property .....	19,695.17	65,889.16	— 85,584.33
513. Dividend income .....	1,012,575.00	571,408.25	+ 441,166.75
514. Income from funded securities .....	166,433.00	110,820.80	+ 55,612.20
515. Income from unfunded securities and accounts .....	123,718.23	188,599.05	— 64,880.82
519. Miscellaneous income .....	7.00	12.00	— 5.00
Total non-operating income .....	1,435,276.44	1,122,079.13	+ 313,197.31
Gross income .....	7,388,567.92	6,589,823.12	+ 798,744.80
Deductions from Gross Income:			
534. Expenses of miscellaneous operations .....	151.31	38,259.98	— 38,108.67
542. Rent for leased roads .....	73,243.23	373,360.16	— 116.93
543. Miscellaneous rents .....	142,377.28	149,370.21	— 6,992.93
546-A. Interest on funded debt .....	3,038,127.66	2,795,480.90	+ 242,646.76
546-B. Interest on non-negotiable debt to affiliated companies .....	36,584.68	33,921.84	+ 2,662.84
547. Interest on unfunded debt .....	7,394.46	2,156.21	+ 5,238.25
548. Amortization of discount on funded debt .....	95,454.42	73,716.78	+ 21,737.64
551. Miscellaneous income charges .....	19,842.12	18,443.66	+ 1,398.46
Total deductions from gross income .....	3,713,175.16	3,484,709.74	+ 228,465.42
Net income .....	\$3,675,392.76	\$3,105,113.38	+ \$570,279.38



# The Chesapeake and Ohio Railway Company, Forty-Ninth Annual Report

Richmond, Va., March 31, 1927.

To the Stockholders:

The Forty-ninth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1926, is herewith submitted.

The average mileage operated during the year was 2,646.31 miles, an increase over the previous year of 31.36 miles. The mileage at the end of the year was 2,650.95 miles, an increase of 15.51 miles over mileage on December 31, 1925.

## Results for the Year

Operating Revenues.....	\$133,974,030.62	
(Increase \$10,789,927.50, or 8.76%)		
Operating Expenses.....	90,970,788.34	
(Increase \$1,989,369.71, or 2.24%)		
Net Operating Revenue.....	\$ 43,003,242.28	
(Increase \$8,800,557.79, or 25.73%)		
Taxes and Uncollectible Railway Revenues.....	8,255,623.11	
(Increase \$1,443,332.71, or 21.19%)		
Railway Operating Income.....	\$ 34,747,619.17	
(Increase \$7,357,225.08, or 26.86%)		
Net Equipment and Joint Facility Rents.....	2,263,405.36	
(Decrease \$364,271.96, or 13.86%)		
Net Railway Operating Income.....	\$ 37,011,024.53	
(Increase \$6,992,953.12, or 23.30%)		
Miscellaneous Income.....	2,404,393.38	
(Increase \$909,628.96, or 60.85%)		
Total Gross Income.....	\$ 39,415,417.91	
(Increase \$7,902,582.08, or 25.08%)		
Rental and Other Payments.....	551,044.25	
(Increase \$101,459.97, or 22.57%)		
Income for year available for interest.....	\$ 38,864,373.66	
(Increase \$7,801,122.11, or 25.11%)		
Interest (24.95% of amount available) amounted to.....	9,696,867.49	
(Decrease \$1,338,384.41, or 12.13%)		
Net Income for the year applicable to dividends.....	\$ 29,167,506.17	
(Increase \$9,139,506.52, or 45.63%)		
Dividend of 6½% on Cumulative Convertible Preferred Stock, Series "A".....	\$323,037.56	
Less—Adjustment account Preferred Stock converted into Common Stock during Dec., 1926, after Dec., 8, 1926, the date as of which stockholders of record were entitled to dividends.....	42.24	322,995.32
Net Income equivalent to 24.64% of \$117,050,300 Common Stock outstanding December 31, 1926.....		\$ 28,844,510.85
Common Stock Dividend—		
6% on amount of stock held by stockholders of record April 1, 1926.....	\$ 6,881,694.00	
2% on amount of stock held by stockholders of record June 8, 1926.....	2,297,248.00	
2% on amount of stock held by stockholders of record September 8, 1926.....	2,328,068.00	
2% on amount of stock held by stockholders of record December 8, 1926.....	2,340,196.00	
	\$13,847,206.00	
Less—Adjustments account of conversions of 5% Convertible Bonds and 6½% Series "A" Preferred Stock converted into Common Stock during year.....	211,446.08	13,635,759.92
Remainder, available for payments of principal amounts of Equipment Trusts and Improvement of physical and other assets.....		\$15,208,750.93

## Financial

In accordance with the Trust Indenture dated April 1, 1916, between your Company and Central Union Trust Company of New York, the five percent Convertible Secured Gold Bonds were convertible up to April 2, 1926, into Common Capital Stock at \$90 per share, and thereafter the bonds were convertible into Common Capital Stock at par. During the year, these bonds in the amount of \$13,856,500 were converted at 90 into Common Capital Stock in the par amount of \$15,396,111.11, and the face amount of \$809,000 was converted into a like amount of Common Capital Stock.

In accordance with the provisions of Article 5 of the Trust Indenture dated April 1, 1916, and in accordance with the provisions of the five percent Convertible 30-year Secured Gold Bonds due April 1, 1946, issued under and secured by said Indenture, your Company pursuant to resolutions of your Board of Directors passed at meeting held June 25, 1926, gave notice that all of the five percent Convertible bonds which had not been converted on or prior to September 1, 1926, into Common Capital Stock of your Company, would be redeemed on or after

October 1, 1926, at 105 and accrued interest to said redemption date. As of September 1, 1926, said five percent Convertible 30-year Secured Gold Bonds in the amount of \$1,074,000 had not been converted into Common Capital Stock. Subsequent to October 1, 1926, \$373,500 of bonds were redeemed, leaving, as of December 31, 1926, \$700,500 of these bonds outstanding the interest on which subsequent, to October 1, 1926, does not accrue. This amount is carried in Table 3 under Current Liabilities—Funded Debt Matured Unpaid.

Your Company's 6½ percent Cumulative Convertible Preferred Stock Series "A" is convertible into Common Capital Stock on the basis of share for share. During the year \$10,154,000 par value of this Preferred Stock was converted into a like amount of Common Capital Stock. As of December 31, 1926, shown in Table 3 of this report, the amount of 6½ percent Cumulative Convertible Preferred Stock, Series "A" outstanding was \$1,943,500.

The amount of Common Capital Stock and Scrip outstanding as of December 31, 1926, was \$117,061,391.66, an increase during the year of \$26,359,111.11, which increase was caused by the conversion of the five percent Convertible Secured Gold Bonds and the conversion of 6½ percent Cumulative Convertible Preferred Stock, Series "A," detailed in the two preceding paragraphs of this report.

During the year your Company caused the incorporation of the Virginia Transportation Corporation and acquired the entire issued capital stock of said corporation, which as of December 31, 1926, owned shares of stocks of the Erie Railroad Company as follows:

137,405 shares First Preferred acquired at an average price of \$47.209 per share;  
50,495 shares Second Preferred acquired at an average price of \$44.936 per share;  
350,200 shares Common acquired at an average price of \$38.539 per share;  
and also shares of stocks of Pere Marquette Railway Company as follows:  
800 shares of Prior Preference acquired at an average price of \$93.187 per share;  
1,700 shares of Preferred acquired at an average price of \$89.333 per share.

Your Company as of December 31, 1926, also held options, subject to the action of the Interstate Commerce Commission, for the purchase of additional shares of stocks of said railroad companies as follows:

### Erie Railroad Company Shares:

First Preferred Stock .... 23,695 shares at \$45.875 per share  
Second Preferred Stock .. 22,305 shares at 43.750 per share  
Common Stock ..... 345,239 shares at 34.500 per share  
plus an amount equal to interest thereon from September 29, 1926.

### Pere Marquette Railway Company Shares:

205,600 shares of Common stock at \$110 per share plus an amount equal to interest at the rate of 6% per annum upon the purchase price from January 1, 1927, all dividends declared in or for the last calendar quarter of the year 1926 or prior periods to go to optionors.  
5,800 shares of Common stock for the sum of \$639,162.50, being cost to the optionor, an average price of \$110.20 per share, plus an amount equal to the carrying charges and other proper expenses of acquiring the same.

Under date of October 19, 1926, the Interstate Commerce Commission under Finance Docket No. 5820, 117 I. C. C. 129, issued a certificate of public convenience and necessity authorizing the construction of the Chesapeake and Hocking Line between Gregg, Ohio, and Valley Crossing, Ohio, a distance of approximately 63 miles, the estimated cost of which is \$13,000,000.

In Finance Dockets Numbers 5882 and 5883, 117 I. C. C. 338, the Interstate Commerce Commission authorized the Chesapeake and Hocking Railway Company to issue not exceeding \$70,000 of Common Capital Stock, and promissory notes not exceeding \$12,500,000, and granted permission to The Chesapeake and Ohio Railway Company to acquire control of the Chesapeake and Hocking Company by purchase of its Common Capital Stock. Pursuant to this authority, your Company has acquired during the year Common Capital Stock of the Chesapeake and Hocking Railway Company in the amount of \$69,300, being all of the

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outstanding Common Capital Stock, except seven shares of par amount \$700 held by the Directors as qualifying shares.

As of December 31, 1926, your Company has advanced to the Chesapeake and Hocking Railway Company \$1,186,928.74, for which the Chesapeake and Hocking Railway Company has given promissory notes with interest at six percent. The construction of this line will be pushed as fast as it is possible.

In accordance with authority granted by the Interstate Commerce Commission in Finance Docket No. 5292, 105 I. C. C. 800, your Company purchased as of April 28, 1926, all of the outstanding Common Capital Stock, viz.: \$50,000 par value, of the Pond Fork and Bald Knob Railroad Company at a cost of \$250,000. The value of the property on a reproduction basis is approximately \$570,000. Pursuant to the above authority, the property of the Pond Fork & Bald Knob Railroad Company was leased to your Company as of April 28, 1926.

In accordance with authority granted by the Interstate Commerce Commission in Finance Docket No. 5340, 105 I. C. C. 804, your Company purchased, as of May 6, 1926, all of the outstanding Common Capital Stock viz.: \$400,000 par value, of the Island Creek Railroad Company for \$1,500,000. The value of the property on a reproduction basis is approximately \$1,784,750. The property of the Island Creek Railroad Company, since 1912, has been operated under lease by your Company.

On August 30, 1926, your Company made application to the Interstate Commerce Commission for authority to purchase all of the Capital Stock of the Greenbrier and Eastern Railroad Company, the par amount of which is \$1,000,000; the Sewell Valley Railroad Company, the par amount of which is \$100,000, and the Loop and Lookout Railroad Company, the par amount of which is \$100,000. Hearings in connection with this application were had by the Interstate Commerce Commission commencing on Monday, October 25, 1926, but up to the time of the printing of this report no decision in connection with this application has been reached by the Interstate Commerce Commission.

The changes in funded debt in the hands of the public during the year were as follows:

4 percent Greenbrier Railway First Mortgage Bonds.....	\$ 20,000.00
4 percent Big Sandy Railway First Mortgage Bonds.....	79,000.00
4 percent Coal River Railway First Mortgage Bonds.....	28,000.00
5 percent Kanawha Bridge and Terminal Company First Mortgage Bonds.....	6,000.00
4 percent Raleigh and Southwestern Railway First Mortgage Bonds.....	11,000.00
5 percent Convertible Secured Gold Bonds.....	15,739,500.00
Equipment Trust Obligations.....	4,573,800.00
Decrease .....	\$20,457,300.00

#### General Remarks

The revenue coal and coke tonnage was 56,398,551, an increase of 8.0 percent; other freight tonnage was 11,464,742, a decrease of 2.5 percent. Total revenue tonnage was 67,863,293 tons, an increase of 6.0 percent. Freight revenue was \$119,155,159.62, an increase of 10.0 percent. Freight train mileage was 14,825,567 miles, an increase of 5.2 percent. Revenue ton miles were 19,797,447,160, an increase of 13.3 percent. Ton mile revenue was 6.02 mills, a decrease of 2.9 percent. Revenue per freight train mile was \$8.037, an increase of 4.6 percent. Revenue tonnage per train mile was 1,335 tons, an increase of 7.7 percent; including Company's freight, the tonnage per train mile was 1,389 tons, an increase of 8.0 percent. Tonnage per locomotive mile, including Company's freight, was 1,257 tons, an increase of 6.3 percent. Revenue tonnage per loaded car was 41.7 tons, an increase of 3.5 percent. Tons of revenue freight carried one mile per mile of road were 7,481,180, an increase of 12.0 percent.

There were 5,370,176 passengers carried, a decrease of 7.6 percent. The number carried one mile was 264,544,106, a decrease of 5.7 percent. Passenger revenue was \$9,082,094.20, a decrease of 5.6 percent. Revenue per passenger per mile was 3.433 cents, an increase of 0.1 percent. Number of passengers carried one mile per mile of road was 106,542, a decrease of 7.1 percent. Passenger train mileage was 5,592,273, a decrease of 0.5 percent. Passenger revenue per train mile was \$1.624, a decrease of 5.1 percent; including mail and express it was \$1.989, a decrease of 5.0 percent. Passenger Service Train Revenue per train mile was \$2.051, a decrease of 4.8 percent.

Operating Expenses increased \$1,989,369.71, or 2.2 percent. Transportation Expenses increased \$1,685,138.03, or 4.9 percent. Ratio of Transportation Expenses to Operating Revenues was 27.2 percent in 1926 and 28.2 percent in 1925. Revenue ton miles increased 13.3 percent.

Roadway, Track and Structures were maintained in good condition throughout the year.

During the year the following sections of second track were completed and put in operation:

Logan Division—between Harts and Big Creek 5.29 miles

Northern Division—between Limeville and Sciotoville ..... 3.34 miles  
between Wheeler and a point about one mile east of Apex. 10.63 miles  
between Apex and M. P. 21.5 about one mile east of Robbins ..... 2.43 miles

The Northern Division is now double tracked except from near Mile Post 18 to near Mile Post 19 (through Apex cut), a distance of about one mile, now under construction, and from the present end of double track just west of Gregg to the point where the line of the Chesapeake and Hocking Railway begins, a distance of approximately .15 of a mile, also under construction, and from a point near Sciotoville to a point near Wheeler, a distance of about 4½ miles.

Grade crossings were eliminated at the following points: Doswell, Va., Overhead Highway Bridge was constructed separating the grades of the railroad and a state highway; Low Moor, Va., undergrade crossing was constructed separating the grades of the railroad and a state highway; Marmet, W. Va., undergrade crossing was constructed separating the grades of the railroad and a state highway; Charleston, W. Va., Ferry Branch undergrade crossing was widened; Russell, Ky., undergrade crossing constructed at Ferry Street, separating the grades of the railroad and a city street; Winchester, Ky., overhead highway bridge was built near M. P. 623 separating the grades of the railroad and a state highway.

Automatic sprinkler system was installed at Camp Morrison, Va., to afford fire protection for the new warehouses built during the last two or three years.

Automatic train control was completed between Orange, Va., and Clifton Forge, Va., costing approximately \$600,000.00. With the completion of this work the investment in automatic train control and signaling in this territory amounts to nearly \$1,000,000.00. The installation of automatic signals in this territory gives automatic block signal protection between Washington, D. C., Newport News, Va., and Cincinnati, O., except the section between Richmond, Va., and Gordonsville, Va.

At Raleigh, W. Va., an addition was made to the engine house, and at Russell, Ky., improvements to the engine terminal were completed, consisting of a 14 stall roundhouse, 115 feet turntable, machine and blacksmith shop, storeroom, 1,000 ton reinforced concrete coaling station, power plant, office and other buildings, engine terminal tracks, shop yard, lighting, equipment and machinery costing about \$1,250,000.00.

At Huntington, W. Va., new boiler shop costing approximately \$600,000.00 was completed and put in operation and storeroom was extended to provide offices for the mechanical and stores departments.

The clearances in Blue Ridge Tunnel near Afton, Va., and in Lake Tunnel near Backbone, Va., were increased to permit of the handling of larger equipment through these tunnels.

Other improvements were undertaken during the year which have not been completed. Among the more important projects are:

Greenwood, Va., enlarge and reline Brookville Tunnel; Callaghan, Va., rebuild and enlarge Red Hill (Mud) Tunnel; Backbone, Va., line Moores Tunnel with concrete; Alleghany, Va., increase clearance in Alleghany Tunnel.

Lyle, Va., replace Bridge No. 2090-A with four single track deck plate girder spans; Big Sandy Junction, Ky., rebuild and enlarge 28 columns and pedestals in Hampton Approach to Bridge No. 5129; Vanceburg, Ky., rebuild Bridge No. 5722 over Salt Lick Creek and eliminate guantlet.

Omar, W. Va., construct branch line up Pine Creek, a distance of 4.36 miles.

On page 10 of your Annual Report for the year ended December 31, 1925, reference was made to the status of valuation by the Interstate Commerce Commission of the lines of The Chesapeake and Ohio Railway Company, The Chesapeake and Ohio Railway Company of Indiana and subsidiaries as of valuation date June 30, 1916. During the year informal conferences with the Bureau of Valuation were held, at which conferences agreements were reached with respect to a large number of matters in dispute. The Interstate Commerce Commission set February 24, 1927, as the date for the commencement of the hearing on matters about which no agreement was reached in conference, and as this report goes to press these hearings are still in progress.

Among the new industries established along your line during the year were the following:

14 Manufacturers of Farm Implements and Farm Products.  
15 Manufacturers of Lumber, and Lumber Products.  
288 Manufacturers of Mineral, Metal and other products.

Your Directors acknowledge the great appreciation of the Company for the faithful and efficient services of its officers and employees.

By order of the Board of Directors.

O. P. VAN SWERINGEN, W. J. HARAHAN,  
Chairman. President.



Table 3—General Balance Sheet Dec. 31, 1926

(Excluding Stocks and Bonds owned of The C. &amp; O. R'y Co. of Indiana and of The C. &amp; O. Equipment Corporation.)

INVESTMENTS			Assets		Liabilities	
			Unpledged		CAPITAL STOCK	
Investment in Road and Equipment:				Pledged	Common .....	\$117,061,391.66
Road .....			\$237,319,408.57		6½% Cumulative Convertible Preferred	
Equipment .....			131,269,868.39		Stock—Series "A" .....	1,943,500.00
			\$368,589,276.96		First Preferred (To be retired under	
					plan of February 23, 1892) .....	3,000.00
Improvements on Leased Rail-			174,335.00		Second Preferred (To be retired under	
way Property .....			357,850.29		plan of February 23, 1892) .....	200.00
Sinking Funds .....					Common—The Chesapeake and Ohio	
Deposits in Lieu of Mort-			236,036.10		Railway Company of Indiana .....	1,200.00
gaged Property Sold .....			519,231.13			119,009,291.66
Miscellaneous Physical Prop-					Less—held by or for the Company at	
erty .....					date (Common)—(See Contra) .....	11,000.00
INVESTMENTS IN AFFILIATED COMPANIES					Total Stock outstanding with public	\$118,998,291.66
Stocks .....	\$32,977,767.44	\$11,213,999.44	44,191,766.88		FUNDED DEBT.	
Bonds .....	6,547,527.25	2,200,001.00	8,747,528.25		General Funding and Improvement 5%	
Notes .....	1,000,000.00	1.00	1,000,001.00		Bonds .....	1929 3,698,000.00
Advances .....	1,052,313.44		1,052,313.44		Convertible 4½% Bonds .....	1930 31,390,000.00
			\$ 54,991,609.57		First Mortgage R. & S. W. Railway 4%	
Other Investments.					Bonds .....	1936 767,000.00
Stocks .....	15,535.93		15,535.93		First Consolidated Mortgage, 5%	
Bonds .....	1.00	385,000.00	385,001.00		Bonds .....	1939 30,000,000.00
Notes .....	550,001.00		550,001.00		First Mortgage, Craig Valley Branch,	
Advances .....	63,864.43		63,864.43		5% Bonds .....	1940 650,000.00
Miscellaneous .....	1,700.00		1,700.00		First Mortgage, Greenbrier Railway, 4%	
			\$ 1,016,102.36		Bonds .....	1940 1,599,000.00
Total Investments..			\$425,884,441.41		First Mortgage, Warm Springs Branch	
CURRENT ASSETS					5% Bonds .....	1941 400,000.00
Cash in Treasury .....			5,516,411.16		First Mortgage Big Sandy Railway, 4%	
Cash in Transit .....			875,364.23		Bonds .....	1944 4,025,000.00
*Cash Deposit—Preferred					First Mortgage, Paint Creek Branch, 4%	
Stock, Series "A" Pro-			574,320.69		Bonds .....	1945 539,000.00
ceeds .....					First Mortgage, Coal River Railway, 4%	
Cash Deposit, Special					Bonds .....	1945 2,441,000.00
Fund for Additions and					First Mortgage, C. & O. Northern Rail-	
Betterments, New Equip-			3,446,270.44		way Company, 5% Bonds .....	1945 1,000,000.00
ment, Branch Lines, etc					First Mortgage, Potts Creek Branch, 4%	
Cash Deposits to pay In-			3,933,441.13		Bonds .....	1946 600,000.00
terest and Dividends...					First Mortgage, Kanawha Bridge &	
Miscellaneous Cash De-			61,829.98		Terminal Company, 5% Bonds .....	1948 429,000.00
posits .....			1,444,704.36		First Mortgage, Virginia Air Line Rail-	
Loans and Bills Receivable			4,497,825.17		way, 5% Bonds .....	1952 900,000.00
Traffic and Car Service					First Mortgage, R. & A. Division, 4%	
Balances Receivable....			956,246.26		Bonds .....	1989 6,000,000.00
Net Balance Receivable			1,497,583.70		Second Mortgage, R. & A. Division, 4%	
from Agents and Con-			6,167,900.47		Bonds .....	1989 1,000,000.00
ductors .....			91,385.14		General Mortgage 4½% Bonds .....	1992 48,129,000.00
Miscellaneous Accounts Re-			35,141.89		Secured Obligations, Account final set-	
ceivable .....			73,449.81		tlement Federal Control Period .....	1930 9,200,000.00
Material and Supplies...					Secured Obligations to U. S. Govern-	
Interest and Dividends Re-					ment .....	1931 6,738,523.97
ceivable .....					Secured Obligations to U. S. Govern-	
Rents Receivable .....					ment .....	1932 1,334,500.00
Other Current Assets...					Equipment Trust Obligations and Con-	
			\$ 29,171,874.43		tracts .....	42,563,200.00
DEFERRED ASSETS					Total Funded Debt outstanding with	
Working Fund Advances .....			11,565.53		public .....	\$193,403,223.97
Insurance and Other Funds			214,616.31			\$312,401,515.63
Other Deferred Assets...			222,526.65		Held by or for the Company at date:	
			\$ 448,708.49		(See Contra)	
UNADJUSTED DEBITS					First Lien and Improvement 5% Mort-	
Rents and Insurance Premi-			155,103.89		gage Bonds .....	1930 75,045,000.00
ums—Paid in Advance...			2,536,313.59		General Mortgage 4½% Bonds .....	1992 1,039,000.00
Other Unadjusted Debits					First Mortgage, R. & S. W. Railway,	
Securities Issued or As-					4% Bonds .....	1936 40,000.00
sumed:						76,124,000.00
Common Capital Stock					CURRENT LIABILITIES	
(see Contra) .....	11,000.00				Traffic and Car Service Balances Payable	353,779.56
First Lien and Improve-					Audited Accounts and Wages Payable...	8,939,538.01
ment 5% Mgt. Bonds					Miscellaneous Accounts Payable .....	463,969.82
(see Contra) .....	50,488,000.00	24,557,000.00	75,045,000.00		Interest Matured Unpaid .....	741,722.40
General Mortgage 4½%			1,039,000.00		Dividends Matured Unpaid .....	2,404,676.00
Bonds (see Contra) .....	552,000.00	487,000.00			Funded Debt Matured Unpaid .....	714,674.17
First Mortgage, R. & S.					Unmatured Interest Accrued .....	2,207,132.16
W. Railway 4% Bonds					Unmatured Rents Accrued .....	470,943.21
(see Contra) .....	40,000.00		40,000.00		Other Current Liabilities .....	123,932.32
Total Unadjusted Debits			\$ 78,815,417.48		Total Current Liabilities .....	16,420,417.75
Grand Total .....			\$534,320,441.81		DEFERRED LIABILITIES	
*The actual amount of balance of proceeds from sale of Preferred Stock, Series "A," as of December 31, 1926, is \$1,124,320.69, of which amount \$550,000.00 is invested in United States Treasury 3½% Certificates of Indebtedness, which are carried in "Other Investments—Notes."					Other Deferred Liabilities .....	577,913.52
					Total Deferred Liabilities .....	577,913.52
					UNADJUSTED CREDITS	
This Company is also liable as a guarantor of the following securities:					Tax Liability .....	5,983,590.34
Western Pocahontas Fuel Co. Coupon 5% Notes. Due 1919					Insurance and Casualty Reserves .....	214,616.31
and 1921 (\$500,000 each year), owned by this Company			\$1,000,000.00		Accrued Depreciation—Road .....	321,359.07
The Chesapeake and Ohio Grain Elevator Co., First Mort-					Accrued Depreciation—Equipment .....	28,848,661.37
gage 4% Bonds due 1938 .....			820,000.00		Other Unadjusted Credits .....	4,272,416.97
Richmond-Washington Co. Collateral Trust Mortgage (C.					Total Unadjusted Credits .....	39,640,744.06
& O. prop'n 1/6) 4% Bonds due 1943 .....			10,000,000.00		CORPORATE SURPLUS	
Louisville and Jeffersonville Bridge Co. Bills Payable					Additions to Property through Income	
(C. & O. prop'n 1/3) 6% Notes due 1931 .....			147,000.00		and Surplus .....	25,479,653.61
Louisville and Jeffersonville Bridge Co. Mortgage (C. &					Funded Debt Retired through Income and	
O. prop'n 1/3) Bonds due 1945 .....			4,500,000.00		Surplus .....	647,656.28
Western Pocahontas Corporation, First Mortgage 4½%					Sinking Fund Reserves .....	357,850.29
Bonds due 1945 .....			750,000.00		Total Appropriated Surplus .....	26,485,160.18
Western Pocahontas Corporation, Extension Mortgage No. 1,					Profit and Loss—Credit—Balance .....	62,670,690.67
4½% Bonds due 1945 .....			97,000.00		Total Corporate Surplus .....	89,155,850.85
Western Pocahontas Corporation, Extension Mortgage No. 2,					Grand Total .....	\$534,320,441.81
4½% Bonds due 1946 .....			51,000.00			
Norfolk Terminal and Transportation Company First Mort-						
gage 5% Bonds due 1948 .....			500,000.00			

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# The Hocking Valley Railway Co., Twenty-Eighth Annual Report

Columbus, Ohio, March 2, 1927.

To the Stockholders:

The Twenty-eighth Annual Report of the Board of Directors, for the fiscal year ended December 31, 1926, is herewith submitted.

The average mileage operated during the year was 348.57 miles, the same as the average mileage operated during the previous year. The mileage at end of the year was 348.57 miles.

## Results for the Year

Operating Revenues.....	\$19,550,258.48
(Decrease \$109,453.44 or .56%.)	
Operating Expenses.....	13,826,111.11
(Decrease \$483,286.17 or 3.38%.)	
Net Operating Revenue.....	\$ 5,724,147.37
(Increase \$373,832.73 or 6.99%.)	
Taxes and Uncollectible Railway Revenue.....	1,332,332.11
(Increase \$110,793.49 or 9.07%.)	
Railway Operating Income.....	\$ 4,391,815.26
(Increase \$263,039.24 or 6.37%.)	
Net Equipment and Joint Facility Rents.....	194,779.78
(Increase \$314,782.95 or 61.78%.)	
Net Railway Operating Income.....	\$ 4,197,035.48
(Increase \$577,822.19 or 15.97%.)	
Other Income.....	247,431.71
(Decrease \$43,062.45 or 14.82%.)	
Total Gross Income.....	\$ 4,444,467.19
(Increase \$534,759.74 or 13.68%.)	
Rentals and Other Payments.....	68,170.36
(Increase \$11,926.43 or 21.20%.)	
Income for the year available for interest.....	\$ 4,376,296.83
(Increase \$522,833.31 or 13.57%.)	
Interest (37.35% of amount available).....	1,634,489.62
(Decrease \$151,227.34 or 8.47%.)	
Income Balance, for the year.....	\$ 2,741,807.21
Dividends paid during the year:	
Four dividends of 2% each, aggregating.....	\$879,560.00
One special dividend of 4%.....	439,980.00
	1,319,540.00
Balance, devoted to improvement of physical and other assets..	\$ 1,421,867.21

## Financial

The changes in funded debt shown by balance sheet of December 31, 1926, as compared with December 31, 1925, consisted in (a) the payment of \$622,565.27 on equipment trusts, (b) the payment of \$700,000 face amount Six-Year Six Per Cent. Collateral Note (releasing, and placing in your Company's treasury, \$933,000 face amount Six Per Cent. General Mortgage Bonds, Series A, which had been pledged to secure this note), (c) the payment of \$1,665,000 face amount Ten-Year Six Per Cent. Collateral Notes (releasing, and placing in your Company's treasury, \$2,220,000 face amount Six Per Cent. General Mortgage Bonds, Series A), which had been pledged to secure these notes, and (d) the retirement and cancellation, by the Trustee, of \$127,000 face amount First Consolidated Mortgage Four and One-half Per Cent. Gold Bonds, through the Sinking Fund provision of the mortgage; and in the addition of \$392,719.68 equipment agreement dated November 2, 1925, for the purchase of 10 switching locomotives. During the year the \$6,000,000 face amount Two-Year Five Per Cent. Secured Gold Notes, which matured March 1, 1926, were refunded by a like amount of Six Months Five Per Cent. Secured Gold Notes which matured September 1, 1926, and the latter notes at maturity were refunded by a like amount of Six-Months Five Per Cent. Secured Gold Notes due March 1, 1927; the collateral, \$7,500,000 face amount General Mortgage Bond, Series A, released at the respective maturities, was used to secure the new issues.

During the past eighteen years your Company's net addition to property accounts has been as follows:

Equipment .....	\$ 8,719,983.45
Additions and Betterments .....	13,427,333.50
	\$22,147,316.95

## General Remarks

There were 5.07 miles of additional second main track completed and placed in service on the Toledo Division, as follows:—0.07 miles at Upper Sandusky, and 5.00 miles between Fostoria and Longley, being all new construction with the exception of

Table 3—General Balance Sheet, December 31, 1926

Investments.		Assets		Liabilities	
Investment in Road and Equipment:—		Road .....		Capital Stock,—Common .....	
Road .....		\$39,540,001.03		(\$500.00,—see Contra)	
Equipment .....		19,649,576.88		Funded Debt.	
		\$59,189,577.91		First Consolidated Mortgage 4% %	
Sinking Funds.....		590.07		Bonds .....	
Deposits in Lieu of Mortgaged Property Sold		1,071,520.14		1999 \$15,895,000.00	
(Includes \$901,991.57,—see Contra)				First Mortgage C. & H. V. R. R. 4%	
Investments in Affiliated Companies,—Pledged:—				Bonds .....	
Stocks .....		\$ 108,088.66		1948 1,401,000.00	
Bonds .....		300,000.00		First Mortgage C. & T. R. R. 4%	
		408,088.66		Bonds .....	
Investments in Affiliated Companies,—Unpledged:—				1955 2,441,000.00	
Stocks .....		\$ 694.00		Equipment Trust Obligations.....	
Bonds .....		196,451.80		(Includes \$901,991.57,—see Contra)	
Notes .....		1,345,000.00		27,063,991.57	
Advances .....		47,988.91		Held by or for the Company:—	
		1,590,134.71		General Mortgage 6% Bonds (see Contra)	
Other Investments:—				12,801,000.00	
Bonds .....		\$ 326,000.00		Other Debt.	
Notes .....		35,000.00		Six Months 5% Secured Gold Notes....	
		361,000.00		\$ 6,000,000.00	
Total Investments.....		\$62,620,911.49		Non-negotiable Debt to Affiliated Companies:—	
Current Assets.				Open Accounts.....	
Cash .....		\$ 2,563,972.37		10,127.77	
Time Drafts and Deposits.....		750,000.00		6,010,127.77	
Special Deposits.....		403,677.50		Working Liabilities.	
Loans and Bills Receivable.....		10,000.00		Traffic and Car Service Balances Payable..	
Traffic and Car Service Balances Receivable		731,301.38		403,038.29	
Net Balance Receivable from Agents and				Audited Accounts and Wages Payable....	
Conductors .....		35,269.28		1,110,157.11	
Miscellaneous Accounts Receivable.....		475,008.63		Miscellaneous Accounts Payable.....	
Material and Supplies.....		886,567.14		115,095.55	
Interest and Dividends Receivable.....		55,467.99		Interest Matured Unpaid.....	
Other Current Assets.....		2,800.07		404,710.00	
		5,914,064.36		Unmatured Interest Accrued.....	
Deferred Assets.				241,670.83	
Working Fund Advances.....		\$ 11,397.95		Other Working Liabilities.....	
Insurance and Other Funds.....		97,177.93		10,650.54	
		108,575.88		2,285,322.32	
Unadjusted Debits.				Deferred Liabilities.	
Rents and Insurance Premiums Paid in				Other Deferred Liabilities.....	
Advance .....		\$ 21,110.40		38,911.08	
Other Unadjusted Debits.....		329,700.12		Unadjusted Credits.	
Securities Issued or Assumed—Unpledged:—				Tax Liability.....	
Capital Stock—Common				\$ 988,208.04	
(see Contra).....		\$ 500.00		Insurance and Casualty Reserves.....	
General Mortgages 6%				97,177.93	
Bonds (see Contra)....		5,301,000.00		Accrued Depreciation—Equipment.....	
		5,301,500.00		4,796,915.23	
Securities Issued or Assumed				Other Unadjusted Credits.....	
—Pledged:—				713,577.08	
General Mortgage 6%				6,595,878.28	
Bonds (see Contra)....		\$7,500,000.00		Corporate Surplus.	
		7,500,000.00		Additions to Property through Income and	
		13,152,310.52		Surplus .....	
Total .....		\$81,795,862.25		\$ 312,072.40	
				Funded Debt Retired through Income and	
				Surplus .....	
				138,756.90	
				Sinking Fund Reserves.....	
				650.74	
				Miscellaneous Fund Reserves.....	
				41,091.78	
				Appropriated Surplus not Specifically In-	
				vested .....	
				13,405.25	
				Total Appropriated Surplus.....	
				\$ 505,977.07	
				Profit and Loss,—Credit Balance.....	
				15,494,654.16	
				16,000,631.23	
				Total .....	
				\$81,795,862.25	

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1.98 miles of track formerly used for siding purposes. This completes construction of second track between Columbus and Longley. Center siding (125 car capacity) was completed and placed in service at Prospect.

Approximately 2.0 miles of yard tracks at Walbridge and 8.5 miles of yard tracks at Parsons were completed and placed in service.

A 160,000 gallon steel water tank was completed and placed in service south of Bellefontaine Avenue, Marion; and an 8-inch water supply line was laid from the water softening plant in Marion north yard, to this new tank. A 150,000 gallon steel water tank, replacing two 20' x 26' wooden tanks, was completed and placed in service at Hookers.

The work of separating grades at Dennison Avenue, Columbus, required by the City authorities, is nearly completed.

	1926	1925	
Operating Revenues were..	\$19,550,258.48	\$19,659,711.92	Dec. \$109,453.44
Net Opr. Revenues were..	5,724,147.37	5,350,314.64	Inc. 373,832.73
Operating Ratio.....	70.7%	72.8%	Dec. 2.1%
Tons of Revenue Freight			
Carried One Mile.....	2,596,271,626	2,613,880,450	Dec. 17,608,824
Revenue Train Load—Tons	1,574	1,467	Inc. 107
Revenue Tons per Loaded Car .....	47.7	47.7	

The revenue coal and coke tonnage was 18,713,789 tons, a decrease of 1.1%; other revenue freight tonnage was 4,184,142 tons, an increase of 6.6%. Total revenue tonnage was 22,897,931 tons, an increase of 0.2%. Freight revenue was \$16,995,350.66, a decrease of 0.6%. Freight train mileage was 1,649,705 miles, a decrease of 7.4%. Revenue ton miles were 2,596,271,626, a decrease of 0.7%. Ton mile revenue was 6.55 mills, an increase of 0.2%. Revenue per train mile was \$10.302, an increase of 7.4%. Revenue tonnage per train mile was 1,574 tons, an increase of 7.3%; including Company's freight, the tonnage per train mile was 1,614 tons, an increase of 7.0%. Tonnage per

locomotive, including Company's freight, was 1,373 tons, an increase of 7.7%. Revenue tonnage per loaded car was 47.7 tons, same as last year. Tons of revenue freight carried one mile per mile of road were 7,448,351, a decrease of 0.7%.

There were 381,584 passengers carried, a decrease of 7.1%. The number of passengers carried one mile was 24,186,694, a decrease of 2.9%. Passenger revenue was \$785,523.71, a decrease of 3.8%. Revenue per passenger per mile was 3.248 cents, a decrease of 1.0%. The number of passengers carried one mile per mile of road was 69,388, a decrease of 2.9%. Passenger train mileage was 623,748, an increase of 0.7%. Passenger revenue per train mile was \$1,259, a decrease of 4.5%; including mail and express it was \$1,619, a decrease of 4.7%. Passenger service train revenue per train mile was \$1,670, a decrease of 4.7%. References were made in reports for last three years to the decrease in the number of local passengers carried and in the revenue therefrom due to the establishment of motor bus lines and increased use of private motor cars. In 1926 there was a further decrease of 9.0% in the number of local passengers carried and 7.9% in the revenue therefrom due largely to the same causes. There was an increase of 2.8% in the revenue from through passengers.

On October 29, 1926, the Interstate Commerce Commission served on your Company and its two carrier subsidiaries (The Wellston and Jackson Belt Railway Company and The Pomeroy Belt Railway Company), the respective tentative valuations as of valuation date, June 30, 1917. Protest was made against these valuations within the time prescribed by the Commission.

Appreciative acknowledgment is hereby made to officers and employees for their efficient service during the year.

By order of the Board of Directors:

O. P. VAN SWERINGEN, W. J. HARAHAAN,  
Chairman. President.

## Thirty-Second Annual Report of the Atchison, Topeka & Santa Fe Railway Company

For the Fiscal Year Ending December 31, 1926

OFFICE OF  
THE ATCHISON, TOPEKA & SANTA FE RAILWAY SYSTEM,  
No. 5 Nassau Street, New York City.

MARCH 15, 1927.

To the Stockholders:

Your Directors submit the following report for the fiscal year January 1, 1926, to December 31, 1926, inclusive.

### Income and Profit and Loss Statement

The following is a summary of the transactions of the System for the years ending December 31, 1925 and 1926:

	1925	1926
Operating Revenues .....	\$236,942,528.78	\$259,040,315.80
Operating Expenses .....	163,541,728.12	168,759,308.22
Net Operating Revenue.....	\$73,400,800.66	\$90,281,007.58
Railway Tax Accruals .....	17,565,042.20	20,986,147.62
Uncollectible Railway Revenues.....	71,564.25	48,390.97
Equipment and Joint Facility Rents.....	2,097,501.79	3,167,587.96
Net Railway Operating Income.....	\$53,666,692.42	\$66,078,881.03
Other Income .....	5,709,123.01	6,186,796.24
Gross Income .....	\$59,375,815.43	\$72,265,677.27
Miscellaneous Tax Accruals .....	61,826.63	54,545.35
Rent for Leased Roads and Other Charges	1,909,336.16	323,454.49
Interest on Bonds, including accrued interest on Adjustment Bonds.....	\$57,404,652.64	\$71,887,677.43
Net Corporate Income (representing amount available for dividends and surplus) .....	\$46,157,934.12	\$60,631,494.98
From the net corporate income for the year the following sums have been deducted:		
DIVIDENDS ON PREFERRED STOCK—		
No. 56 (2½%) paid		
Aug. 2, 1926.....	\$3,104,320.00	
No. 57 (2½%) paid		
Feb. 1, 1927.....	3,104,320.00	
	\$6,208,640.00	
DIVIDENDS ON COMMON STOCK—		
No. 84 (1¼%) paid		
June 1, 1926.....	\$4,067,166.25	
No. 85 (1¼%) paid		
Sept. 1, 1926.....	4,067,166.25	
No. 86 (1¼%) paid		
Dec. 1, 1926.....	4,067,166.25	
March 1, 1927.....	4,067,166.25	
No. 87 (1¼%) paid		
Extra (¾%) paid March 1, 1927.....	1,743,071.25	
	18,011,736.25	
California-Arizona Lines Bonds Sinking Fund .....	19,568.49	

	1925	1926
S. F. & S. J. V. Ry. Co. Bonds Sinking Fund .....	56,440.11	24,296,384.85
Surplus carried to Profit and Loss.....		\$36,335,110.13
Surplus to credit of Profit and Loss, December 31, 1925 .....	\$209,852,286.09	
Surplus appropriated for investment in physical property .....	\$337,665.39	
Sundry Adjustments.....	130,869.27	
	468,534.66	209,383,751.43
Surplus to credit of Profit and Loss December 31, 1926..		\$245,718,861.56

"Other Income" consists of interest accrued and dividends received on securities owned, including United States Government securities, interest on bank balances, rents from lease of road and other property, and other miscellaneous receipts.

### Capital Expenditures and Reduction of Book Values

The total charges to Capital Account, as shown by the General Balance Sheet at December 31, 1926, aggregated \$1,048,458,432.18 compared with \$989,653,543.11 at December 31, 1925, an increase during the year of \$58,804,889.07.

### Comparison of Operating Results

The following is a statement of revenues and expenses of the System for the year ending December 31, 1926, in comparison with the previous year:

	Year ending Dec. 31, 1926	Year ending Dec. 31, 1925	Increase or Decrease
OPERATING REVENUES:			
Freight .....	\$196,327,515.44	\$174,868,230.78	\$21,459,284.66
Passenger .....	44,024,407.25	44,116,181.52	91,774.27
Mail, Express, and Miscellaneous .....	18,688,393.11	17,958,116.48	730,276.63
Total Operating Revenues .....	\$259,040,315.80	\$236,942,528.78	\$22,097,787.02
OPERATING EXPENSES:			
Maintenance of Way and Structures .....	\$34,656,075.16	\$34,205,079.25	\$450,995.91
Maintenance of Equipment .....	47,423,682.56	46,893,904.37	529,778.19
Traffic .....	5,171,494.82	4,760,212.98	411,281.84
Transportation—Rail Line .....	76,901,304.75	72,800,601.32	4,100,703.43
Miscellaneous Operations .....	112,313.70	184,789.62	72,475.92
General .....	5,491,465.99	5,518,571.17	27,105.18
Transportation for Investment—Cr. ....	997,028.76	821,430.59	175,598.17
Total Operating Expenses .....	\$168,759,308.22	\$163,541,728.12	\$5,217,580.10

[ADVERTISEMENT]

	Year ending Dec. 31, 1926	Year ending Dec. 31, 1925	Increase or Decrease
Net Operating Revenue...	\$90,281,007.58	\$73,400,800.66	\$16,880,206.92
Railway Tax Accruals...	20,986,147.62	17,565,042.20	3,421,105.42
Uncollectible Railway Revenues .....	48,390.97	71,564.25	23,173.28
Railway Operating Income .....	\$69,246,468.99	\$55,764,194.21	\$13,482,274.78
Equipment Rents—Net—Dr. ....	2,487,611.25	1,328,693.14	1,158,918.11
Joint Facility Rents—Net—Dr. ....	679,976.71	768,808.65	88,831.94
Net Railway Operating Income .....	\$66,078,881.03	\$53,666,692.42	\$12,412,188.61

The average tons of freight (revenue and company) per loaded car mile increased from 21.72 to 23.0, or 5.89 per cent.

The average tons of freight (revenue and company) carried per freight-train mile (freight and mixed) increased from 670.07 to 709.70, or 5.58 per cent.

The average freight revenue per freight-train mile increased from \$7.57 to \$7.74, or 2.19 per cent.

The average passenger revenue per passenger-train mile was \$1.90 in both years.

The average passenger-train revenue per passenger-train mile increased from \$2.48 to \$2.51, or 1.20 per cent.

The tons of freight carried one mile (revenue and company, but excluding water ton miles) increased 2,509,802,359, or 16.21 per cent, while miles run by freight cars (loaded and empty) in freight and mixed trains increased 136,068,758, or 12.3 per cent, and the mileage of such trains increased 2,246,037, or 9.72 per cent.

The number of passengers carried one mile decreased 21,968,000, or 1.56 per cent, while miles run by passenger-train cars (excluding work) in passenger and mixed trains increased 6,793,604, or 3.82 per cent, and the mileage of such trains decreased 48,058, or .21 per cent.

#### Taxes

Federal and State and Local tax accruals for the year 1926 aggregate \$20,986,147.62, an increase over the year 1925 of \$3,421,105.42. A comparison of these accruals for the two years is presented in the following table:

FEDERAL TAXES:	1926	1925	Increase or Decrease
Income and War.....	\$8,826,575.30	\$6,080,432.51	\$2,746,142.79
Capital Stock .....	213,965.00	430,840.00	216,875.00
Stamp and License.....	13,294.08	7,335.06	5,959.02
Total Federal .....	\$9,053,834.38	\$6,518,607.57	\$2,535,226.81
State and Local.....	11,932,313.24	11,046,434.63	885,878.61
Grand Total .....	\$20,986,147.62	\$17,565,042.20	\$3,421,105.42

#### General

The year 1926 was one of prosperity for your Company. The passenger revenues continued to decrease, due as in the past, to the increasing use of automobiles and busses which affected seriously all local travel. Through passenger business, however, is growing slowly and it offset part of the losses in local so that the total decline in passenger earnings was only \$91,774.27. It is felt that the bottom has now been reached and that a growth in total passenger business may normally be expected henceforth. In contrast, freight earnings were \$21,459,284.66 in excess of any previous year and revenue freight ton miles were greater by 2,452,233,971 ton miles, or 17.7 per cent. While there was a satisfactory movement of general commodities, the outstanding features of this business were the large wheat crop and the development of oil in the Texas Panhandle. The favorable agricultural conditions which prevailed at the time of the issuance of the annual report a year ago continued without any serious setback throughout the year. Consequently good crops were produced in the greater part of your territory. Wheat and cotton made particularly heavy yields. Your Company alone has handled over 13,000 carloads of wheat to Galveston since July 1st, compared with 412 cars for the same period the preceding year. For 50 days in mid-summer wheat loading averaged 1,050 cars per day, with the largest day's loading 1,569 cars. The size of the cotton crop was almost a calamity to the grower because the price fell from about 21 cents per pound to about 12 cents. Crop prospects for 1927 east of the Rocky Mountains are almost as good as a year ago and in California they are better, but it is hardly probable that such favorable conditions will be sustained through to the close of this season.

For several years drilling for oil and gas has been in progress in the Texas Panhandle, the center of the district lying some 50 miles northeast of Amarillo between your main line and the Canadian River. Prior to 1926 gas wells had been brought in and there was only a modest production of oil. However, early in 1926 oil wells of good size began to come in and production increased steadily and rapidly to a peak of about 165,000 barrels per day in October. Due to cold weather and a let-up in drilling it is now down to about 127,500 barrels per day. To take care of the transportation needs of this district, a 31 mile branch line was built north from the station of Pan-

handle. Moreover, the main line is being double tracked from Panhandle to Canyon, a distance of 45.04 miles, and it may be necessary to extend the second track eastward from Panhandle 27 miles farther to Pampa. Oil shipments alone from this district averaged over 350 cars per day for the last six months and there was in addition a heavy inbound tonnage of oil well supplies. Three-quarters of the oil went south toward the Gulf, thus throwing a heavy burden on that part of the line between Panhandle and Canyon as it was at the same time extremely busy with California business.

The fact that your Company met this maximum demand without embarrassment, with an adequate car supply for all tonnage offered and adequate power and trackage for its movement, is a source of gratification and indicates that the policy of keeping slightly ahead of the normal growth of its territory in the matter of additions, betterments, and improvements in all its facilities is the correct one for your company to follow.

While it is yet too early to make any prediction as to the business for 1927, it can hardly be expected that the earnings will be as large as in the past year, because these were the result of a rare combination of generally prosperous conditions in the territory served by us, of a large wheat crop, of a new oil development, and of a road able to handle all the business that came to it.

The full program for capital expenditures for 1927 includes \$24,000,000 to finish up work authorized prior to January 1st, 1927, \$15,500,000 for new equipment, and \$27,500,000 for new additions, betterments, and improvements. The total is \$67,000,000, of which about \$40,000,000 will probably be spent during the current year. The new equipment consists of 3,200 freight cars, 58 passenger cars, 60 locomotives, and 3 gas-electric cars.

During the year 1926 your Company paid out in pensions to its retired employees \$431,068.92, there being 1,012 pensioners on its rolls at December 31st, compared with \$373,500.54 paid in 1925 and 954 pensioners December 31st, 1925. The pensioners have an average service of 29 years with the Company. During 1926 death benefits were paid in 341 cases, amounting to \$330,009.41, compared with \$329,985.00 paid in 1925 in 328 cases. The average length of service in all cases in which death benefits have been paid is 15 years, the average for 1926 being also 15 years.

While numerous bills affecting railroad operations have been presented to the national and state legislative bodies, none of serious moment has been passed except the Watson-Parker Bill. This did away with the Labor Board and substituted in lieu a Board of Mediation. If a dispute fails of settlement by this Board the way is open to arbitration, and if there is an arbitration award it is binding. Thus the possibility of a strike is greatly minimized. The legislative situation otherwise is unchanged from a year ago and there does not seem to be any likelihood of important change in the immediate future, which is favorable, as the railroads are not left in a condition of uncertainty, which in times past has been very harmful to them.

The Interstate Commerce Commission has made and served on your system companies tentative valuations of your carrier properties (properties exclusively employed in transportation service) as of June 30th, 1916, using 1914 prices for labor and material and 1916 land values. Objections were filed to such tentative valuations, evidence heard, and the cases argued and submitted. Disposition of the questions raised by your objections and the valuation of your carrier properties as of June 30th, 1916, is expected at an early date. Between said valuation date and December 31st, 1926, your system companies have expended for new construction, acquisition of new lines and new equipment and for additions and betterments to existing properties, after deductions for all retirements, approximately \$295,000,000.

The Indian Detours by bus and auto service which were inaugurated in New Mexico in May of 1926 proved attractive and were well patronized for a new thing. It is expected that they will grow steadily in popularity as they become better known and will attract new business to your road.

Since the close of the fiscal year the Company suffered the loss of Mr. Edward Chambers, Vice-president in charge of Traffic, who died in San Francisco, February 11, 1927. Beginning in the humble capacity of a freight handler at Pueblo, Mr. Chambers had been in the service of the Company for about forty-nine years, including his war service as Director of Traffic of the Food Administration and of the United States Railroad Administration. Besides being a master of all the intricacies of traffic problems, his kindness and good humor marked all his dealings with his fellow men and made friends everywhere for him and for the Company.

Your Directors take pleasure in expressing their appreciation of faithful and efficient service rendered by officers and employees.

W. B. STORY,  
President.



## Railway Finance

(Continued from page 1222)

**CENTRAL OF GEORGIA.—1926 Earnings.**—Annual report for 1926 shows net income after interest and other fixed charges of \$3,675,393 equivalent to \$18.37 a share on the common stock. Net income in 1925 was \$3,105,113 or \$15.52 a share. See excerpts from annual report on adjacent pages.

**CHESAPEAKE & OHIO.—1926 Earnings.**—As previously reported the annual report for 1926 shows net income after interest and other charges of \$29,294,803 equivalent after dividends on the preferred stock to \$24.75 a share on the common. Net income in 1925 was \$20,152,270 or \$21.32 a share. Hocking Valley annual report shows net income for 1926 of \$2,746,459 or \$24.96 a share. See excerpts from annual reports of these companies on adjoining pages.

**CHICAGO, BURLINGTON & QUINCY.—Abandonment.**—The Interstate Commerce Commission has issued a certificate authorizing the Burlington and the Deadwood Central and the Black Hills & Fort Pierre of which it owns all the capital stock, to abandon a branch line from Galena Junction to Galena, Lawrence County, S. D., 6.98 miles, built in 1901 for the purpose of serving gold mine operations since discontinued several years ago.

**CHICAGO GREAT WESTERN.—1926 Earnings.**—Annual report for 1926 shows net income after interest and other fixed charges of \$901,405 equivalent to \$1.92 a share on the preferred stock. Net income in 1925 was \$628,920 or \$1.33 a share. Selected items from the income statement follow:

### Chicago Great Western

	1926	1925
Average mileage operated..	1,496.06	1,496.06
RY. OPERATING REVENUES..	25,359,000	24,502,760
Maintenance of way....	3,422,674	3,442,378
Maintenance of equipment	4,991,567	4,849,979
Transportation .....	9,854,747	9,803,838
TOTAL OPERATING EXPENSES	20,027,496	19,812,718
Operating ratio .....	78.98	80.86
NET REVENUE FROM OPERATIONS .....	5,331,504	4,690,042
Railway tax accruals....	1,129,183	1,000,263
Railway operating income..	4,196,201	3,685,931
Equipment rents..Net Dr.	862,670	701,535
Joint facility rents..Net Dr.	866,385	896,483
NET RAILWAY OPERATING INCOME .....	2,467,147	2,087,913
Non-operating income....	233,789	358,844
GROSS INCOME .....	2,700,936	2,446,757
Rent for leased roads....	44,818	45,021
Interest on funded debt..	1,698,304	1,709,840
TOTAL DEDUCTIONS FROM GROSS INCOME.....	1,799,531	1,817,836
NET INCOME .....	901,405	628,920

**CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Reorganization Plan Filed With I. C. C.**—This new company, recently incorporated in Wisconsin, on April 12 filed with the Interstate Commerce Commission the reorganization plan by which it proposes to take over the property of the Chicago, Milwaukee & St. Paul, following the receivership, with an application for authorization by the commission of the acquisition of the property and the issuance

of the new securities. These include \$106,395,096 of 50-year 5 per cent mortgage bonds, \$182,873,693 of 5 per cent convertible adjustment mortgage bonds, \$118,845,800 of preferred stock, and 1,174,060 shares of common stock without nominal or par value. The plan, which was recently approved by Federal Judge James H. Wilkerson at Chicago, provides among other things for the following:

1. A net reduction in the amount of fixed interest-bearing securities of approximately \$180,000,000 and a net reduction of annual fixed interest charges on funded debt from about \$21,800,000 to less than \$14,000,000.
2. Funding of more than \$185,000,000 of obligations maturing during the next ten years into long-term obligations, the interest charges upon more than \$104,000,000 of which will be contingent upon earnings. Under its existing capital structure, the system, at the date of receivership, March 18, 1925, faced maturities during the next ten years of about \$239,000,000.
3. Provision for the raising by assessments of about \$70,000,000 in cash, of which a large amount is to be set aside for addition and betterments and additional working capital.
4. Release of \$18,000,000 of general mortgage bonds now pledged to secure the notes held by the United States Government. The reorganization plan contemplates the immediate adjustment of the debt of \$55,000,000 to the government. Secretary of the Treasury Mellon has accepted the proposed method of repaying the government debt with \$52,000,000 in cash and \$3,000,000 of preferred stock. A saving of approximately \$2,000 a day in interest upon the debt to the government will be immediately effected as soon as the plan is consummated.
5. Adequate provision for the financing of future requirements and for the funding of underlying bonds through the creation of a new financing mortgage of sufficient security to enable the sale of bonds thereunder at normal rate and discounts.

The property was sold at public auction at Butte, Mont., last November. The purchase price was \$140,000,000 and the purchasers assumed all outstanding obligations. The only bid was from Kuhn, Loeb & Co. and the National City Company, representing more than 80 per cent of the security holders.

It is expected that the Interstate Commerce Commission will grant hearings on the application at an early date.

**DELAWARE & HUDSON.—Hearing on Applications to I. C. C.**—The Interstate Commerce Commission announced on April 9 that it had assigned for hearing on April 25 before Examiner Davis the application of this company for authority to acquire control of the Buffalo, Rochester & Pittsburgh by lease and also its application for authority to operate over a line of the Pennsylvania connecting the two roads, from Buttonwood to Dubois, Pa.

**DELAWARE & HUDSON.—1926 Earnings.**—Annual report for 1926 shows net income after interest and other fixed charges and after deductions of income applied to sinking and other reserve funds of \$7,877,445 equivalent to \$18.28 a share on the capital stock. Net income in 1925 was \$4,907,708 or \$11.54 a share. Selected items from the income statement follow:

### Delaware & Hudson

	1926	1925
RAILWAY OPERATING REVENUES .....	\$46,433,690	\$41,769,491
Maintenance of way....	\$5,373,037	\$4,713,894
Maintenance of equipment .....	11,506,764	11,121,308
Transportation .....	15,411,348	15,499,877
TOTAL OPERATING EXPENSES .....	\$34,941,819	\$34,030,126
Operating ratio .....	75.25	81.47

NET REVENUE FROM OPERATIONS .....	\$11,491,871	\$7,739,365
Railway tax accruals..	1,688,168	1,136,746
Hire of freight cars—		
Cr. bal. ....	\$37,018	\$194,512
Joint facility rents—		
Dr. bal. ....	214,692	195,440
NET RAILWAY OPERATING INCOME .....	\$9,774,816	\$6,715,442
Non-operating income..	5,860,125	5,412,600
GROSS INCOME .....	\$15,634,941	\$12,128,041
Rent for leased roads..	1,962,169	1,904,152
Interest on funded debt	3,641,312	3,602,113
TOTAL DEDUCTIONS FROM GROSS INCOME .....	\$7,757,496	\$7,220,333
NET INCOME .....	\$7,877,445	\$4,907,708

**DELAWARE, LACKAWANNA & WESTERN.—Distribution of Securities.**—This company, the Morris & Essex, and the New York, Lackawanna & Western, have filed joint applications with the Interstate Commerce Commission for such authority as is necessary for the proposed transfer of securities to the new Lackawanna Securities Company.

**INTERNATIONAL - GREAT NORTHERN.—Equipment Trust Certificates.**—The Interstate Commerce Commission has authorized the issuance of \$1,755,000 4½ per cent equipment trust certificates, series B, to be sold to Freeman & Co. of New York, the highest of four bidders, at 98.533 per cent of par, giving an average annual cost to the carrier of approximately 4.733 per cent. The equipment includes 10 locomotives, 14 passenger train cars, 600 freight train cars and a wrecker having a total approximate cost of \$2,346,253.

**KANSAS CITY SOUTHERN.—1926 Earnings.**—Annual report for 1926 shows net income after interest and other fixed charges of \$2,279,832 equivalent after the 4 per cent dividends on the preferred stock to \$4.81 a share on the common. Net income in 1925 was \$2,113,299 or \$4.25 a share. Selected items from the income statement follow:

### Kansas City Southern

	1926	1925
Average mileage operated	865.10	865.10
RAILWAY OPERATING REVENUES .....	21,921,947	21,165,155
Maintenance of way..	2,506,165	2,843,100
Maintenance of equipment .....	3,523,780	3,473,567
Transportation .....	6,766,974	6,607,757
TOTAL OPERATING EXPENSES .....	14,548,658	14,585,804
Operating ratio .....	66.37	68.91
NET REVENUE FROM OPERATIONS .....	7,373,288	6,579,352
Railway tax accruals..	1,437,017	1,350,568
Railway operating income	5,929,587	5,219,070
Equipment rents. Dr..	835,522	587,317
Joint facility rents. Dr.	90,222	128,328
NET RAILWAY OPERATING INCOME .....	5,003,843	4,493,426
Dividend income ....	337,500	168,750
*Interest on funded debts	2,490,576	2,062,832
NET INCOME .....	2,279,832	2,113,299
Disposition of net income:		
Dividends on preferred stock .....	840,000	840,000
Surplus for year carried to profit and loss....	1,439,832	1,273,299

**LONG ISLAND.—1926 Earnings.**—Annual report for 1926 shows net income after interest and other fixed charges of \$3,144,171, a decrease of \$695,955 as com-

pared with 1925. Selected items from the income statement follow:

Long Island		
	1926	Increase or Decrease
Average mileage operated	401.25	4.35
RAILWAY OPERATING REVENUES	39,648,538	2,779,246
Maintenance of way...	5,045,573	-400,637
Maintenance of equipment	6,360,022	193,542
Transportation	16,159,406	2,059,947
TOTAL OPERATING EXPENSES	29,007,593	2,035,560
NET REVENUE FROM OPERATIONS	10,640,946	743,686
Railway tax accruals	2,151,527	-33,577
Railway operating income	8,481,272	794,343
Equipment rents, Dr.	1,356,309	607,287
Joint facility rents, Dr.	1,292,733	931,696
NET RAILWAY OPERATING INCOME	5,832,230	-744,640
Non-operating income	790,783	161,265
GROSS INCOME	6,623,013	-583,375
Rent for leased roads	60,001	-44,083
Interest on funded debt	3,055,359	121,077
TOTAL DEDUCTIONS FROM GROSS INCOME	3,478,842	112,580
NET INCOME	3,144,171	-695,955

**MAINE CENTRAL.**—1926 *Earnings.*—As previously reported the annual report for 1926 shows net income after interest and other fixed charges of \$1,270,397 equivalent after allowances for 5 per cent dividends on the preferred stock to \$9.28 a share on the common. Net income in 1925 was \$1,177,000 or \$8.55 a share. Selected items from the income statement follow:

Maine Central		
	1926	1925
Average mileage operated	1,121.24	1,198.81
RAILWAY OPERATING REVENUES	20,423,812	20,070,587
Maintenance of way...	3,013,982	2,966,147
Maintenance of equipment	3,872,810	3,908,765
Transportation	8,092,830	7,941,517
TOTAL OPERATING EXPENSES	15,843,270	15,667,792
Operating ratio	77.57	78.06
NET REVENUE FROM OPERATIONS	4,580,542	4,402,796
Railway tax accruals	1,227,041	1,184,180
Railway operating income	3,349,048	3,216,138
Equipment rents, Net Cr.	48,321	147,334
Joint facility rents, Net Dr.	264,343	259,143
NET RAILWAY OPERATING INCOME	3,133,026	3,104,329
Non-operating income	263,128	256,549
GROSS INCOME	3,396,155	3,360,878
Rent for leased roads	814,423	902,121
Interest on funded debt	1,246,804	1,213,994
TOTAL DEDUCTIONS FROM GROSS INCOME	2,125,758	2,183,878
NET INCOME	1,270,397	1,177,000
Dividends on preferred stock	150,000	150,000
Reserve fund for payment of dividends accumulated on preferred stock		300,000
Surplus for year carried to profit and loss	1,120,397	727,000

**MOBILE & OHIO.**—1926 *Earnings.*—Annual report for 1926 shows net income after interest and other fixed charges of \$1,886,339 equivalent to \$31.35 a share on the capital stock. Net income in 1925 was \$2,187,623 or \$36.35 a share. Selected items from the income statement follow:

Mobile & Ohio		
	1926	1925
Average mileage operated	1,161.33	1,161.33
RAILWAY OPERATING REVENUES	\$19,342,805	\$19,255,064
Maintenance of way...	2,858,604	2,809,052
Maintenance of equipment	3,503,595	3,282,239
Transportation	6,645,210	6,638,250
TOTAL OPERATING EXPENSES	14,219,710	13,882,643
NET REVENUE FROM OPERATIONS	5,123,095	5,372,421
Railway tax accruals	1,223,872	1,152,829
Equipment rents, Dr.	194,436	272,750
Joint facility rents, Dr.	292,592	299,078
NET RAILWAY OPERATING INCOME	3,404,766	3,642,919
Non-operating income	165,169	167,651
GROSS INCOME	3,569,935	3,810,569
Deductions from gross income	53,157	16,957
Total available income	3,516,777	3,793,613
Interest on funded debt	1,353,840	1,353,840
Balance of income over charges	1,886,339	2,187,623
Dividends	601,680	601,680
Balance carried to credit of profit and loss	1,284,659	1,585,943

**MUSCLE SHOALS, BIRMINGHAM & PENSACOLA.**—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to purchase a line of 4.9 miles from the Gulf Power Company and one of 3.7 miles from the Gulf Ports Terminal, near Pensacola.

**PIGEON RIVER.**—*Abandonment.*—This company which was operated for a while by the Tennessee & North Carolina, has been authorized by the Interstate Commerce Commission to abandon that part of its line from Sunburst to Spruce, 3.078 miles, in Haywood County, N. C. This line formerly served lumber operations.

**SEABOARD AIR LINE.**—*Bonds Authorized.*—The Interstate Commerce Commission has authorized this company to issue \$1,491,000 first and consolidated mortgage bonds, Series A, to be pledged as security for short term notes. The carrier's application was for \$1,742,500.

**TEXAS & PACIFIC.**—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized the issuance of \$1,425,000 4½ per cent equipment trust certificates, series JJ, to be sold at 98.544 per cent of par to Freeman & Co. of New York, the highest of four bidders, which price gives an average annual cost of approximately 4.731 per cent. The equipment includes 20 locomotives having a total approximate cost of \$1,922,554.

**Bonds.**—This company has been authorized by the Interstate Commerce Commission to issue \$16,000,000 general and refunding mortgage 5 per cent bonds, series R, to be sold at not less than 97 to Kuhn, Loeb & Co. The proceeds are to be used in part to redeem notes and in part to reimburse the company's treasury for additions and betterments. The company also asked authority to issue \$14,000,000 of like bonds to be pledged for short-term notes but action on this part of the application was deferred.

**ULSTER & DELAWARE.**—*Annual Report.*—Annual report for 1926 shows a deficit after charges of \$111,697 as compared with a deficit in 1925 of \$94,982. Selected items from the income statement follow:

Ulster & Delaware		
	1926	1925
Railway operating revenues	\$1,242,253	\$1,331,587
Railway operating expenses	1,093,639	1,158,037
Net revenue from railway operations	\$148,615	\$173,550
Railway tax accruals	69,054	69,100
Total operating income	79,559	\$104,448
Total non-operating income	25,086	25,704
Gross income	\$104,645	\$130,151
Total deductions from gross income	216,342	225,133
Net corporate income (deficit)	\$111,697	\$94,982

**WABASH.**—*Equipment Trust.*—The Interstate Commerce Commission has authorized an issue of \$2,625,000 of equipment trust certificates to be sold at not less than 98.555.

**WABASH.**—1926 *Earnings.*—As previously reported the annual report for 1926 shows net income after interest and other fixed charges of \$8,217,488 equivalent after allowance for 5 per cent dividends on the preferred B stock to \$5.95 a share on the combined preferred A and common. Net income in 1925 was \$7,946,438 or \$5.75 a share. Selected items from the income statement follow:

Wabash		
	1926	1925
Average mileage operated	2,524.20	2,524.20
RY. OPERATING REVENUES	71,693,341	69,910,301
Maintenance of way...	9,859,556	9,311,985
Maintenance of equipment	12,457,128	12,348,291
Transportation	26,276,878	25,431,804
TOTAL OPERATING EXPENSES	52,465,680	51,080,424
Operating ratio		
NET REVENUE FROM OPERATIONS	19,227,661	18,829,877
Railway tax accruals	3,428,682	3,287,580
Railway operating income	15,799,598	15,535,228
Hire of freight cars, Dr. Bal.	1,851,695	1,881,230
Joint facility rents, Dr. Bal.	1,370,343	1,384,039
NET RY. OPERATING INCOME	12,562,083	12,252,515
Non-operating income	1,262,370	770,107
GROSS INCOME	13,824,453	13,022,623
Rent for leased roads	363,258	361,704
Interest on funded debt	5,027,594	4,587,596
TOTAL DEDUCTIONS FROM GROSS INCOME	5,606,965	5,076,185
NET INCOME	8,217,488	7,946,438

**WASHINGTON & CHOCTAW.**—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line, from Cantwell to Bolinger, Ala., 10.5 miles, on the ground that the timber traffic which it was built to serve has been exhausted.

#### Average Price of Stocks and Bonds

	Apr. 12	Last week	Last year
Average price of 20 representative railway stocks	110.81	110.30	87.59
Average price of 20 representative railway bonds	101.03	101.23	95.16

#### Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports finding final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates, as follows:

#### Final Reports

Silverton & Northern	\$222,645	1917
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#### Tentative Reports

Minneapolis & Eastern	\$670,714	1919
Monongahela Connecting	3,473,356	1919
Belington & Northern	105,000	1918
Lakeside & Marblehead	405,000	1917
New Jersey Junction	2,216,843	1917



## Railway Officers

### Executive

**F. M. Hicks**, traffic manager of the Gulf, Mobile & Northern, has been elected vice-president in charge of traffic, with headquarters at Mobile, Ala.

**G. A. Austin**, general superintendent of the Gainesville & Northwestern, has been appointed receiver and general manager, with headquarters at Gainesville, Ga. **Luther Reynolds**, claim agent, has been appointed superintendent, with headquarters at Gainesville, succeeding Mr. Austin.

**Roy Terrell** has resigned as vice-president and secretary of the Gulf Coast Lines, with headquarters at New Orleans, La., effective April 15. After a vacation of several months, he will become vice-president and general manager of the New Orleans and Pontchartrain Bridge Company, with headquarters at New Orleans.

**William H. Williams**, chairman of the board of directors of the Texas & Pacific, with headquarters at New York, has also been elected chairman of the board of directors of the Cisco & Northeastern. **J. L. Lancaster**, president of the Texas & Pacific, with headquarters at Dallas, Tex., has also been elected president, succeeding **R. Q. Lee**, who has been elected vice-president, with headquarters at Cisco, Tex. **J. E. Davey**, vice-president, assistant secretary and assistant treasurer of the Missouri Pacific Lines, has also been elected vice-president.

**Robert Wilson**, who has been promoted to executive assistant of the Pacific Great Eastern, upon the abolition of the position of general manager, was born on April 20, 1881, at Greenock, Scotland, and attended the Highlanders' Academy in that city. After leaving Scotland Mr. Wilson was employed in Canada by Foley, Welch & Stewart, railway contractors, entering railway service in 1913 during the construction of the Pacific Great Eastern. He was then transferred to train service, later serving as a station agent and in the auditing department. In February, 1918, when the company was acquired by the government of the Province of British Columbia, Mr. Wilson was appointed auditor. On April 15, 1920, he was promoted to comptroller and assistant general manager, a position he held continuously until his further promotion to executive assistant, with headquarters at Vancouver, B. C., on March 22.

### Financial, Legal and Accounting

**S. B. Goldman**, assistant auditor of the Southern Pacific of Mexico, has been promoted to auditor, with head-

quarters at Tucson, Ariz., and Empalme, Son.

**O. M. Hepler** has been appointed assistant to the comptroller of the Chesapeake & Ohio, with headquarters at Richmond, Va.

**H. H. Watkins** has been appointed freight claim agent of the Ann Arbor, with headquarters at Toledo, Ohio, succeeding **L. L. Shepard**, who will retain his position as freight claim agent of the Wabash, with headquarters at St. Louis, Mo.

**R. P. Eubank**, real estate agent of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been appointed general real estate agent of that road and of the Hocking Valley, with the same headquarters. **E. B. Rush** has been appointed assistant general real estate agent, with headquarters at Richmond, Va.

**Carl A. de Gersdorff**, general counsel of the Missouri Pacific lines and the Texas & Pacific, has been appointed general counsel of the Cisco & Northeastern, with headquarters at New York. **M. D. Cloyd**, assistant secretary and assistant to the president of the Texas & Pacific, has been appointed secretary, with headquarters at Dallas, Tex. **Guy Dabney** has been appointed treasurer, with headquarters at Cisco, Tex. **D. D. Walker** has been appointed auditor, assistant secretary and general freight and passenger agent, with headquarters at Cisco.

### Operating

**H. D. Handley**, acting superintendent of the Southern Pacific of Mexico, has been promoted to superintendent, with headquarters at Empalme, Son.

**Albert S. Critchfield** has been appointed trainmaster on the Lake Superior division of the Northern Pacific, with headquarters at Duluth, Minn.

**B. C. Crow**, general superintendent of the Weatherford, Mineral Wells & Northwestern, has been appointed superintendent of the Cisco & Northeastern, with headquarters at Cisco, Tex.

**H. C. Murphy**, engineer of maintenance of way of the lines of the Chicago, Burlington & Quincy west of the Missouri River, with headquarters at Lincoln, Neb., has been appointed transportation assistant on the staff of the general manager, with headquarters at Omaha, Neb.

**J. M. Smith**, trainmaster of the Hoisington district of the Colorado division of the Missouri Pacific, with headquarters at Hoisington, Kan., has been transferred to the St. Louis and Bagnell districts of the Eastern division, with

headquarters at Jefferson City, Mo., succeeding **B. H. Knapp**, deceased. **H. T. Moore** has been appointed trainmaster at Hoisington, succeeding Mr. Smith.

**Ira B. Chadwick**, who has been appointed superintendent of the Southern division of the Ohio Central lines of the New York Central, with headquarters at Charleston, West Va., was born on June 3, 1865, on a farm near Alexandria, Ohio, and was educated in the country school. He entered railway service in April, 1886, as a telegraph operator on the Toledo & Ohio Central (now the Ohio division of the New York Central). In September, 1891, he



I. B. Chadwick

became a train dispatcher, and in January, 1903, was advanced to chief train dispatcher. In October of the same year he became assistant trainmaster, and was appointed trainmaster in September, 1906. In July, 1909, Mr. Chadwick was appointed assistant superintendent. All this service was on what is now the Ohio division of the New York Central. He was serving in the capacity of assistant superintendent at the time of his recent appointment as superintendent of the Southern division.

### Traffic

**W. H. Cundey**, general passenger agent of the Denver & Rio Grande Western, has been appointed assistant to the passenger traffic manager, with headquarters at Denver, Colo. **H. I. Scofield**, general agent at Detroit, Mich., succeeds Mr. Cundey. **F. G. Hogue**, general agent at Kansas City, Mo., has been transferred to succeed Mr. Scofield and he will be replaced at Kansas City by **H. F. Kleine**, traveling passenger agent.

**Oliver R. Davies**, has been appointed general agent of the Erie, with headquarters at Minneapolis, Minn., succeeding **W. R. Sibley**, transferred. **Thomas J. Williamson** has been appointed general agent, with headquarters at Indianapolis, Ind., succeeding Mr. Davies. **James G. Vreeland** has been appointed general agent, with

headquarters at Columbus, Ohio, succeeding Mr. Williamson.

**Randolph B. Cooke**, division freight and passenger agent of the Pennsylvania, with headquarters at Norfolk, Va., has been appointed general freight and passenger agent in Norfolk and the Norfolk-Portsmouth district. This position has just been created in view of the increasing importance of Norfolk as one of the chief terminals of the Pennsylvania, and as a most important gateway of traffic to and from the Southeastern States.

## Mechanical

**J. O. McPake** has been appointed master mechanic of the Toledo, Peoria & Western, with headquarters at Peoria, Ill., succeeding **F. R. Eckard** who will continue his duties as superintendent.

**Charles H. Wiggin**, consulting mechanical engineer of the Boston & Maine, has retired after 45 years' service with that road. Mr. Wiggin received his education in the public schools of Newmarket, N. H., and at Phillips Exeter Academy, and entered the service of the Boston & Maine in 1882 as a machinist in the Boston shop. In 1885 he was advanced to foreman of the machine department at Boston, and in 1891 became master mechanic of the Concord division at Concord. When the Concord & Montreal was leased to the Boston & Maine in 1895, Mr. Wiggin was appointed master mechanic of the motive power department of the Concord & White Mountain division, serving in that capacity until 1901, when he was transferred to Boston as assistant superintendent of motive power of the Boston & Maine system. From January 1, 1907, until February 1, 1923, Mr. Wiggin was superintendent of motive power, and from the latter date until July, 1924, was mechanical superintendent. In 1924 he was appointed consulting mechanical engineer.

## Engineering, Maintenance of Way and Signaling

**H. H. Main** has been appointed assistant engineer of maintenance of way of the Toledo, Peoria & Western, with headquarters at Peoria, Ill.

**R. G. Heck**, assistant engineer on the Eastern lines of the Chicago, Milwaukee & St. Paul, with headquarters at Savannah, Ill., has been promoted to division engineer, with headquarters at the same point.

**R. L. Sims**, roadmaster on the Brookfield division of the Chicago, Burlington & Quincy, with headquarters at Cameron, Mo., has been promoted to engineer of maintenance of the lines west of the Missouri River, with headquarters at Lincoln, Neb., succeeding **H. C. Murphy**, appointed trans-

portation assistant on the staff of general manager.

**J. W. Young**, assistant engineer for the Richmond Construction Company, Galveston, Tex., has been appointed assistant engineer on the Ft. Worth & Denver City, with headquarters at Ft. Worth, Tex.

**Charles J. Griffin**, who has been appointed principal assistant engineer of the Boston & Maine, with headquarters at Boston, Mass., was born on May 25, 1882, at Everett, Mass., and was graduated from the Massachusetts Institute of Technology in 1904. He entered railroad service with the Boston & Maine on October 21, 1904, as an inspector, which position he held until December, 1906. From December 23, 1906, until May, 1907, he served as transitman on the New York, New Haven & Hartford. On May 1, 1907, he returned to the Boston & Maine as assistant engineer, which position he held until May 1, 1911, when he became resident engineer. Mr. Griffin served as division engineer of construction from February, 1913, until February, 1914, and then was appointed assistant engineer of valuation, in which capacity he served until August, 1918. At the latter time he became construction engineer, which position he held until August, 1924. From August, 1924, until June, 1926, Mr. Griffin served in the maintenance of way department, and then became real estate engineer, which position he was holding at the time of his recent appointment as principal assistant engineer.

## Purchases and Stores

**J. C. Daniels** has been appointed storekeeper of the Richmond car works

of the Chesapeake & Ohio, succeeding **J. F. Topping**, who has been assigned to other duties.

**H. R. Duncan**, inspector of stores of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been appointed traveling storekeeper, succeeding **C. J. Mackie**, resigned. **O. A. Schultz**, chief lumber inspector, has been appointed to succeed Mr. Duncan.

## Special

**Dr. H. A. Harris** has been appointed chief surgeon of the Southern Pacific of Mexico, with headquarters at Empalme, Son.

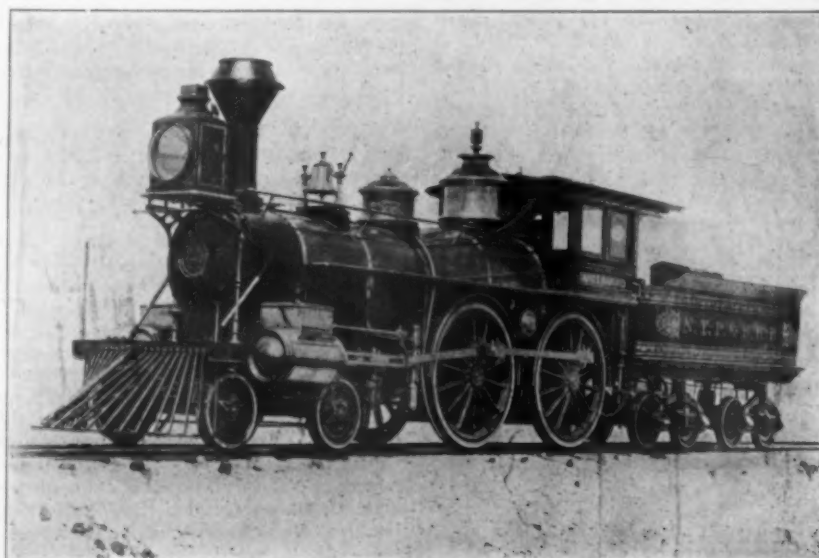
**Dr. Philip Stephens** has been appointed chief surgeon of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., succeeding **Dr. Guy Cochran**, resigned.

## Obituary

**Herbert K. Relf**, general claim agent of the Spokane, Portland & Seattle, died at his home at Portland, Ore., on April 10.

**John C. Hummel**, treasurer of the Colorado Central (now a part of the Union Pacific) from its construction, in 1876, to 1880, died on April 6, at Denver, Col., at the age of 86 years.

**John L. Stewart**, member of the Pennsylvania State Public Service Commission, died at Harrisburg, on April 12, at the age of 60. Mr. Stewart was a member of the faculty of Lehigh University for 26 years prior to his appointment on the Public Service Commission in 1923.



**A New England Beauty, A. D. 1877**

The locomotive shown herewith is the "David S. Babcock" of the New York, Providence & Boston. This engine, with its sister the "J. B. Gardiner" flourished on the Providence-New London section of the Shore Line about 1875-80. These engines, built by the Rhode Island Locomotive Works, had the appearance, as compared with locomotives of the present day, of one mass of gold, gilt and polished brass. Mr. Babcock was vice-president of the New York, Providence & Boston and Mr. Gardiner was superintendent.



